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BOUNDARIES OF THE UNITED STATES AND THE SEVERAL STATES

GEOLOGICAL SURVEY PROFESSIONAL PAPER 909

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**BOUNDARIES OF THE UNITED STATES
AND THE SEVERAL STATES**

Photograph of Mount McKinley courtesy of the National Park Service.▶



MOUNT MCKINLEY, ALASKA. THE HIGHEST PEAK IN THE UNITED STATES;
ALTITUDE 20,320 FEET.

BOUNDARIES OF THE UNITED STATES AND THE SEVERAL STATES

BY FRANKLIN K. VAN ZANDT

GEOLOGICAL SURVEY PROFESSIONAL PAPER 909

With miscellaneous geographic information
concerning areas, altitudes, and geographic centers

This publication supersedes
U.S. Geological Survey Bulletin 1212
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PREFACE

The first Geological Survey record setting forth the history of the boundaries of the United States and the several States and Territories was prepared by Henry Gannett, assisted by Franklin G. Butterfield, and was published as Bulletin 13 of the Geological Survey in 1885. The second edition, revised and enlarged by Henry Gannett, was published as Bulletin 171 in 1900. The third edition, also revised by Gannett, was published as Bulletin 226 in 1904. A revision and enlargement of Bulletin 226, which included additional matter incidentally connected with boundaries, was prepared by Edward M. Douglas and issued in 1923 as Bulletin 689. It was again revised by Douglas in 1930 as Bulletin 817. Bulletin 1212, prepared in 1964 by Franklin K. Van Zandt, is a revision of Bulletin 817.

This professional paper, prepared in 1974-75, is a revision of Bulletin 1212. The revisions include clarification and modification of descriptions of certain boundaries. Some of these changes are a result of resurveys and remonumentation by competent authority, which make it easier to trace the boundary on the ground. Some follow agreements between neighboring States, which have then been approved by Congress. Interest in the sovereignty of off-shore areas has called for definition of the lateral maritime boundaries between neighboring States that border the oceans or the Gulf of Mexico.

Disputes over land boundaries have been resolved by actions brought before the U.S. Supreme Court.

Changes in the national boundaries are brought about by treaties. Some islands where the United States no longer retains sovereignty are omitted from this publication.

Statistical data, mainly in the back of this paper have been brought up-to-date, and there are numerous minor additions and deletions as appropriate.

Many Government agencies and officials, particularly the following, supplied useful information: Bureau of Land Management, Department of the Interior; Office of Territories, Department of the Interior; Bureau of the Census, Department of Commerce; Coast Guard, Department of Transportation; National Geodetic Survey, Department of Commerce; The Geographer, Department of State; and Office of Polar Programs, National Science Foundation.

State agencies have contributed information which has aided to bring this paper up to date.

To aid in the maintenance of current data for this publication, readers are requested to report any errors or obsolete information that comes to their attention.

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BOUNDARIES OF THE UNITED STATES AND THE SEVERAL STATES

BY FRANKLIN K. VAN ZANDT

EXPANSION AND GROWTH OF THE UNITED STATES

The original territory of the United States, as defined by the treaties of November 30, 1782, and September 3, 1783, with Great Britain, was bounded on the north by Canada, on the south by the Spanish Colonies of East and West Florida, on the east by the Atlantic Ocean, and on the west by the Mississippi River. It included the Thirteen Original Colonies and the areas claimed by them.

One of the difficult problems of the new nation was the existence of extensive unoccupied territory between the Thirteen Original Colonies and the Mississippi River. Seven of the Colonies claimed large parts of this territory and some of the claims were conflicting. Recognizing the possibilities for dispute in this situation, the Continental Congress on October 30, 1779, passed a resolution recommending to Virginia and the other interested States that they refrain from granting the unappropriated lands in the western territory during the continuance of the Revolutionary War.

The seven States claiming these areas responded favorably to this action and during the period from 1781 to 1802 ceded the lands to the Federal Government. These lands, which became the nucleus of the public domain, included the area that is now Ohio, Indiana, Illinois, Michigan, Wisconsin, part of Minnesota, Alabama, and Mississippi. The United States continued to hold title to the unappropriated lands and to administer the laws relating to them.

The remainder of the original territory, embracing what is now included in the States of Kentucky, West Virginia, Tennessee, Maine, and Vermont, was claimed by various States as being within their original limits. Kentucky was part of Virginia and Tennessee a part of

North Carolina. Maine was a part of Massachusetts until it entered the Union in 1820. Vermont was the subject of conflicting claims of the States bordering upon it. The parent States all relinquished their claims and consented to the admission of the new States. West Virginia was separated from Virginia in 1863 and became a State by act of Congress. All these new States retained title to the vacant unappropriated lands within their limits.

Additions to the original territory—the acquisitions of Louisiana from France in 1803 and of Florida from Spain in 1819, the Texas annexation in 1845, the establishment of American title to Oregon Territory in 1846, the Mexican cession of 1848, and the Gadsden Purchase from Mexico in 1853—brought the aggregate area of the conterminous¹ United States within its present boundaries to 3,022,387 square miles. All the vast area west of the Mississippi except the State of Texas became a part of the public domain, the United States retaining the ownership of the public lands. Congress made an exception for Texas, consenting to its admission into the Union with the provision that Texas should hold title to all vacant unappropriated lands within its limits.

The Thirteen Original States organized the Federal Union under the name of "The United States of America" by ratifying the Articles of Confederation and, subsequently, the Constitution. The boundaries of these States were not defined in the Acts of ratification, but in general the States maintained their claim to their colonial boundaries which had been established by

¹ The word "conterminous" is used to refer to the 48 States, excluding Alaska and Hawaii. "Continental" United States includes Alaska.

royal decree or by agreement. Some overlapping territorial claims were not finally settled until many years later by decision of our highest court.

The other States were admitted into the Union by acts of Congress, usually upon petition of the citizens residing in the territories in question. The boundaries of these States were defined in the enabling acts. However for some States, notably Missouri and Texas, the boundaries were changed by subsequent legislation.

BOUNDARY PROBLEMS

The boundaries of the United States and of the several States were determined as a result of treaties, purchases, colonial charters, and Acts of Congress. The actual location of the boundary on the ground has frequently been a difficult problem because of lack of knowledge of the physical features of the topography by those who defined the course of the boundary, lack of clarity in the description, and errors in surveying the prescribed lines.

These difficulties are understandable. The need for a determination of jurisdiction arises early in the settlement of a new country, frequently before much exploration has been done. Old maps show many mistakes easily recognizable from our knowledge of geography today. Often the remarkable thing about these maps is how accurate they are.² The mapmaker knows that much data and many position determinations enter into making an accurate map. The historian has given us a picture of the vast regions unexplored in the 18th century, the lack of roads, the hostile Indians, and the small population for so large an area. It is little wonder, then, that the treaty-makers found it difficult to define the limits of national sovereignty and that it is even more difficult to mark them on the ground.

Inexact wording has frequently made ambiguous the intent of the signers of the document fixing a boundary. Disputes over the meaning of treaties have led to long negotiation and sometimes to war. Court records are

full of suits brought to settle ownership of property. The same type of disagreements arise over limits of political divisions: nations, states, and even counties. Unfortunately, in the case of nations, there usually exist no courts that can make a decision and enforce it. Bitter quarrels have arisen over boundaries and some surprising claims have been advanced, such as the cry of "Fifty-four forty or fight." Yet almost always cooler judgment has prevailed and the matter was settled fairly. The surrender to the Federal Government of land in the Northwest Territory claimed by some of the Thirteen Original States illustrates the concessions that were made which permitted the orderly development of the new nation.

Surveying methods and practices have been greatly improved since the days when most of our State and national boundaries were located. Latitude and longitude determinations are made with greater accuracy today, as are angle and distance measurements. This accuracy is due to better instruments and higher requirements. The early surveyor had to endure many hardships. Sometimes it is surprising that his work was as good as it was.

It is legally well established that a boundary or property line once marked on the ground and accepted by the interested parties becomes the true line, whether or not it follows the written description. The surveyor who reruns the line must find where it is rather than move it to conform to the wording of the original document (148 U.S. 503; 103 U.S. 316; 137 U.S. 584; 267 U.S. 39). Conflicting boundary claims and lack of knowledge as to the exact location of the boundary have presented problems to the courts and to the surveyor through the years. Disagreements between adjoining States, or between States and the Federal Government, that cannot be settled by negotiations are brought to the Supreme Court for decision.

The following discussion on how boundaries are established and changed, on the boundaries of the United States and additions to its territory, and on the formation of the various States and the establishment of their boundaries are presented for their historical and geographical interest and for a reference to those who do not care to take time to go to original source material. Certain factual information concerning areas, altitudes, and geography is presented at the end of the

² A map of the colonial period, the "Map of the British and French dominions in North America," by Dr. John Mitchell, was possibly printed between 1762 and 1775 but retained the original publication date, 1755.

Copies of Mitchell's map were used at different stages of the negotiations in Paris between the American and British framers of the peace treaties of 1782-83.

John Adams wrote regarding this map: "We had before us, through the whole negotiations, a variety of maps; but it was the Mitchell's map upon which was marked out the whole boundary lines of the United States." No particular copy has so far been identified as the one thus referred to.

A copy of the Mitchell map used by John Jay, one of the American commissioners, on which a red line was drawn to indicate one of the prelimi-

nary boundary proposals, is now in the library of the New York Historical Society.

In the British Museum there is a heavily annotated copy of Mitchell's map that has on it a red boundary line, which differs from that on the Jay copy (Moore, 1698, p. 154, 161).

The Library of Congress has many copies of the Mitchell map besides those published in England, including 7 French, 2 Dutch, 2 Italian, and 2 Spanish issues, as well as 40 or more reproductions of parts of the map.

Although there are many errors in this map, in 1782-83 it was the best available. Marzin (1927) stated, "It appears to be the most important map in American history."

HOW BOUNDARIES ARE ESTABLISHED AND CHANGED

Boundaries between countries are established by treaties made by the sovereign powers concerned (Brigham, 1919, p. 201-219).

A boundary between two States of the United States may be changed by agreement of the State legislatures, but this agreement must be approved by Congress. The U.S. Congress cannot change a State boundary without the consent of the State, nor can two States by mutual agreement change their common boundary without the consent of Congress. The consent of Congress to a change in a boundary need not be granted by a special act but may be inferred from subsequent legislation.¹ Several times Congress has given its consent in advance for adjoining States to fix an indefinite water boundary between them.²

A boundary between a State and a Territory was fixed by joint action of Congress and the State. Boundaries between Territories were fixed by congressional action alone. Disputes between States regarding boundaries must be settled by the U.S. Supreme Court, whose decisions are final. (148 U.S. 503. For reference to the procedure for submitting boundary disputes to the U.S. Supreme Court, see Martin, 1930, p. 113.)

Long acquiescence in the possession of territory and in the exercise of dominion and sovereignty over it is conclusive of the Nation's title and rightful authority (136 U.S. 510; 202 U.S. 1; 270 U.S. 295; 4 Howard 639).

The statute of limitations in the possession of land does not operate against the United States or a State, and title to Government land cannot be acquired by adverse possession.³

¹ U.S. Supreme Court Repts., 11 Wallace, p. 39-59 (78 U.S. 39-59); 148 U.S. 502 et al. (Prior to 1875 the volumes of the U.S. Supreme Court reports were designated by the name of the official reporter and a number. Some sets of these early reports are now numbered serially also. In order of issue there are 4 reports by Dallas (serial Nos. 1-4), covering the years 1790 to 1800; 9 by Cranch (serial Nos. 5-13), 1801 to 1815; 12 by Wheaton (serial Nos. 14-25), 1816 to 1827; 16 by Peters (serial Nos. 26-41), 1828 to 1842; 24 by Howard (serial Nos. 42-65), 1843 to 1869; 2 by Black (serial Nos. 66-67), 1861 to 1862; and 23 by Wallace (serial Nos. 68-90), 1863 to 1874. Beginning with No. 91, for 1875, the volumes have been numbered serially only. References to these reports are customarily made thus: "6 Cranch 24," "19 Howard 67." The serial number of the volume is sometimes given also. Beginning with v. 91, the references are given in the form "97 U.S. 271," meaning v. 97 of the U.S. Supreme Court reports, p. 271, the page number always being given last.)

² 35 Stat. L. 1160-1161; 36 Stat. L. 881; see also 41 Stat. L. 1447. (References in this volume to acts of Congress, joint resolutions, and presidential proclamations, contained in the U.S. Statutes at Large are given in the form used here, or in the later references, the "L." is dropped. "36 Stat. L. 881" (36 Stat. 881), for example, means v. 36, p. 881.) See Article IV, sec. 3, of the Constitution of the United States. The conditions under which ratification by Congress is essential are described at length in 148 U.S. 520-522. See also an excellent review of this question in the opinion, dated June 17, 1929, rendered by the attorney general of Texas to a joint legislative committee of that State, regarding the 100th meridian boundary.

When original boundary marks have been destroyed, "the law, as well as common sense, must declare that a supposed boundary line long acquiesced in is better evidence of where the real line should be than any survey made after the original monuments have disappeared" (Stewart v. Carleton, 31 Mich. Repts. 270; Diehl v. Zanger, 39 Mich. Repts. 601).

An original monument determines a point on a boundary with greater certainty than courses and distances. "Errors in courses are immaterial" (23 Wallace 46; 103 U.S. 316). When courses have not been marked, a line long recognized as a boundary must be accepted as such (103 U.S. 316).

Three of the most common means of defining a boundary are:

By a water boundary, such as a stream, lake, or other body of water,

By a divide between two drainage basins,

By a meridian of longitude or a parallel of latitude.

The last of these depends for its exactitude on the work of the surveyor. There is no doubt as to the intent of the wording when a parallel of latitude is specified, because the numbering always begins with zero at the equator. The numbering of the meridians now generally accepted increases from zero to the east and west of Greenwich. This has not always been so, and even today in some countries the initial meridian is the one passing through their capital. In the United States the Washington meridian was used as a point of departure in much of the 19th century.

The act of September 28, 1850 (9 Stat. 515), provided, among other things, "That hereafter the meridian of the observatory at Washington shall be adopted and used as the American meridian for all astronomic purposes and . . . that the meridian of Greenwich shall be adopted for all nautical purposes." This act was repealed August 22, 1912 (37 Stat. 342).

The Washington meridian passes through the center of the dome of the old Naval Observatory at 24th Street and Constitution Avenue, N.W., Washington, D.C. It is 5 hours, 8 minutes, 12.15 seconds or 77°03'02.3" west of Greenwich. The longitude given here is derived by astronomic observation. The geodetic value is greater

³ 39 Fed. 554; 95 Pac. 278. References given here are from The Federal Reporter and The Pacific Reporter. The former source has to do with Federal cases in courts below the Supreme Court, and the latter with State supreme court cases in the western part of the United States. See Act of Dec. 22, 1908, Public No. 645, 70th Cong., for conditions under which a patent may be obtained to United States land held for 20 years under "color of title."

by 3.8 seconds, about 300 feet. Because of the difference between astronomic and geodetic values and the lack of precision in early surveys, a boundary referred to the Washington meridian by even degrees may be several seconds in longitude from its position as defined in the enabling act. During the period of nearly 62 years that the act was in force, the meridional boundaries of the Territories and States of Arizona, Colorado, Dakota, Idaho, Montana, Nevada, and Wyoming and the States of Kansas, Nebraska, New Mexico, and Utah were referred to the Washington meridian.

The use of a divide or ridge summit for a boundary has considerable logic to support it. It is a natural barrier and tends to confine political and economic activity to some extent. The intent of the document defining the boundary is clear, and the topographer can mark the line on the ground within very close limits.

If by treaty or statute a nonnavigable river or smaller stream is named as a boundary between States or nations and neither the bank nor the main channel is specified, the line midway between the two banks is the actual boundary. A treaty, statute, or cession may specify that one bank or the other is the boundary; in that case either the high-water or the low-water mark may be the line, according to the wording of the agreement. For example, the north boundary of Kentucky is the low-water mark on the north bank of the Ohio (see p. 94, 111), as fixed by the act of cession by Virginia, and the high-water mark on the west bank of the Chattahoochee River forms part of the west boundary of Georgia (13 Howard 380).

If a boundary line described as following the middle of a river intersects an island, it is the usual policy to give the entire island to the State or Government to which the greater part would fall. This rule was followed by the commission acting under Article VI of the treaty of Ghent in fixing the St. Lawrence River boundary, and also by the Rhode Island and Massachusetts commissions.⁴

No land can be considered an island unless it is surrounded by water at all times. The same tract of land cannot be sometimes in Kentucky and sometimes in Indiana, according to the rise and fall of the river. It must be always in the one State or the other.⁵

⁴For reference to the use of the water of rivers that cross State lines, abstract of laws, and bibliography of 70 entries relating to that subject, see *Hinderlider and Meeker*, 1927, v. 50, p. 1035-1051. See also 228 U.S. 46; 259 U.S. 419; 206 U.S. 46-96 (Arkansas River); 259 U.S. 419 (Laramie River); 282 U.S. 660 (Ware River, Mass.); 283 U.S. 336 (Delaware River); 283 U.S. 423 (Colorado River).

⁵Wharton 374. See decision regarding Wolf Island, Mississippi River, 11 Wallace 355.

"Where running streams are the boundaries between States, . . . when the bed and channel are changed by the natural and gradual processes known as erosion and accretion, the boundary follows the varying course of the stream [see 265 U.S. 499]; while if the stream from any cause, natural or artificial, suddenly leaves its old bed and forms a new one, by the process known as avulsion, the resulting change of channel works no change of boundary, which remains in the middle of the old channel [or on one bank if so fixed by statute], although no water may be flowing in it [246 U.S. 173]."

So long as that channel [as it was previous to avulsion] remains a running stream the boundary marked by it is still subject to be changed by erosion and accretion; but when the water becomes stagnant . . . the boundary then becomes fixed in the middle of the channel [246 U.S. 175].

Thus a line described by statute or treaty as a river boundary may later run across dry land, where it remains fixed unless the river returns to its former channel and changes the channel by slow action. There are many illustrations of this rule in the United States—for example, along the Missouri River between Missouri and Kansas and between Missouri and Nebraska, and on the Mississippi between Tennessee and Arkansas.

If after an avulsion the boundary is again moved by new accretions, a Supreme Court rule (18 Howard 150; 1 Black 209. See also 48 Mich. 88) requires that the boundary be so placed that each State (or individual) shall have a water frontage proportional to what it was immediately after the avulsion occurred, general directions only being considered.⁶

When a navigable river constitutes the boundary between two independent States, the line defining the point at which the jurisdiction of the two separates is well established to be the middle of the main channel of the stream. . . . The controlling consideration which fixes the jurisdiction between neighboring States bordering on a navigable stream "is that which preserves to each State equality in the right of navigation in the river."⁷

The rule as to what constitutes a navigable stream or lake was reaffirmed in a decision by the U.S. Supreme Court dated February 1, 1926 as follows:

"Streams or lakes . . . are navigable . . . when they are used or susceptible of being used in their natural or ordinary condition as highways for commerce . . . whether by steamboats, sailing vessels, or flat boats [270 U.S. 49]."

By common law, only arms of the sea and streams where the tide ebbs and flows are deemed navigable. (140 U.S. 383.)

The terms "thalweg," "fairway," "midway," or "main channel" are used in the definition of water boundaries between States, meaning the middle or deepest or best navigable channel. They are applied to water boundaries in sounds, bays, straits, gulfs, estuaries, and other

⁶Many examples of the application of this rule are shown on the maps accompanying the reports of the commissioners who established the boundary between Oklahoma and Texas along the Red River. See report 4, Jan. 31, 1927, U.S. Supreme Court.

⁷This general rule has no application to a case governed by convention or by a special right based on prior possession. (See 292 U.S. 29.)

⁸143 U.S. 359-367; 147 U.S. 7-13; 202 U.S. 149; 211 U.S. 272-134; 214 U.S. 225, 215, 246 U.S. 156; 247 U.S. 461; 250 U.S. 39; 252 U.S. 282, 250 U.S. 572. Convention with Mexico, Nov. 12, 1884, Art. 1. See Opinions of the Attorney General, 1856, v. 8, p. 175-180, for many references to these rules in international law.

arms of the sea, also to boundary lakes and land-locked seas in which there is a deep-water sailing channel.

The middle of the channel refers to the space within which ships can and usually do pass. This may be and often is midway between the two banks. It is not necessarily the deepest channel, which may be so crooked that it can not be used.¹¹

The true water boundary lines for Mississippi River States are lines along the middle of the main channel of navigation as it existed in 1783, subject to such changes as have occurred since that time through natural and gradual processes [246 U.S. 158].

For States bordering on the Mississippi the term "middle of the Mississippi River," "middle of the main channel of the Mississippi River," "the center of the main channel of that river" are synonymous [147 U.S. 111].

Changes in rivers caused by the works of man do not change boundaries.

The building of docks or other structures in a river does not work an alteration in a boundary line, nor does it affect the sovereignty of the State over the area occupied by such structures. * * * He who owns submerged land owns the land reclaimed.¹²

Each State may establish rules of property over land which emerges on either side of an interstate boundary stream, but such rules extend to the interstate boundary line only [246 U.S. 176].

In a case regarding title to land along a tidal stream in a newly created State, the U.S. Supreme Court decided (3 Howard 212; 9 Howard 471; 13 Howard 25) that the shores of navigable rivers and the soil under them up to high-water mark belong to the adjoining State, not to the United States, but this general rule may be modified by treaty, by statute, or by agreement between States when approved by Congress.¹³

Grants of land by the United States bordering on navigable waters extend to the mean high-water line, but State laws differ in this respect.

When a State is admitted to the Union it becomes vested with the title to lands under navigable waters up to mean high-water mark,¹⁴ but title to the beds of nonnavigable rivers remained in the United States when new States were organized from areas that were formerly public land (283 U.S. 66). State laws cannot affect titles vested in the United States (283 U.S. 75).

What constitutes the high-water line on the shores of oceans, lakes, and rivers has been the subject of a great many court decisions (156 Wisconsin 261, 272. See also 258 U.S. 574), which may be summarized as follows (Johnson, 1919, p. 160):

The point on the bank or shore¹⁵ up to which the presence and action of the water is so continuous as to leave a distinct mark either

¹¹ 147 U.S. 1. For many references to court decisions regarding water boundaries, see Hyde (1922, v. 1, p. 243-248) and Clark (1922, p. 38 and chap. 14).

¹² See brief for the United States in *Marine Railway & Coal Co. v. the United States*, U.S. Supreme Court, October term, 1920, p. 70, 155.

¹³ See *Opinions of the Attorney General*, 1856, v. 8, p. 443; 94 U.S. 324; 138 U.S. 226; 255 U.S. 56; and Clark (1922, p. 295).

¹⁴ 140 U.S. 371; 94 U.S. 325. Riparian rights of individuals differ in different States are not well defined. Riparian rights in England and Canada are ably described in *Canadian Surveyor*, July 1931, p. 7-15.

¹⁵ For references to the meaning of shore and shoreline, see 224 Illinois 43; 79 North Eastern 296, 1907; 12 *Lawyer's Reports Annotated*, new ser. 687, 1908; 53 *Arkansas* 314, 1890; 13 *South Western* 931, 1890; 8 *Lawyer's Reports Annotated*, 559, 1890.

by erosion, destruction of terrestrial vegetation, or other easily recognized characteristic.

The following are Supreme Court definitions:

The bed of the river includes * * * all of the area which is kept practically bare of vegetation by the wash of the waters of the river from year to year * * *, although parts of it are left dry for months at a time. * * * The bank of the river [the Red River] * * * is the water-washed and relatively permanent elevation or declivity [commonly called a cut bank] at the outer line of the river bed which separates the bed from the adjacent upland * * * and serves to confine the waters within the bed * * *. The boundary intended is on and along the bank at the average or mean level attained by the waters when they reach and wash the bank without overflowing it. [Oklahoma v. Texas [Red River boundary case], 260 U.S. 632, 645.]

The shoreline is "the line which is washed by the water wherever it covers the bed of the river within its banks" (13 Howard 418. See also 5 Wheaton 379). It lies "along the bank at the mean level attained by the waters of the river when they reach and wash the bank without overflowing it."¹⁶

The question has often been asked whether a boundary defined by statute or treaty, as on a specified parallel of latitude or meridian of longitude, should be located by direct astronomic observations or from geodetic computations giving a mean position derived from a great number of observations. It has generally been agreed that an astronomic location is the proper one, but astronomic and geodetic positions may differ materially. For example the astronomic stations on the 49th parallel boundary east of the Rocky Mountains vary from 6 seconds north to 8 seconds south of the mean parallel of latitude—a range of more than a quarter of a mile. It seems likely that for future surveys geodetic positions will be used wherever available.¹⁷

Differences between astronomic and geodetic values for the same position on the Earth's surface are often a cause of confusion. An adjustment of the triangulation net across the United States, connecting many accepted astronomic stations, resulted in the adoption of the U.S. Standard Datum. When this horizontal datum was accepted by Canada and Mexico, and their own positions connected to it, it was renamed the North American Datum.

After a general adjustment by the U.S. Coast and Geodetic Survey, a new datum was adopted, called

¹⁶ See opinion of the attorney general of the State of New York, Sept. 30, 1925, on the meaning of the "line of high water," which includes reference to many decisions.

¹⁷ For a discussion of this subject, see U.S. Cong. (1877, p. 280, 261, 267) See also Hodgson and others (1926, p. 1699) and Swelitzer (1927, p. 428).

the 1927 North American Datum, usually referred to as 1927 N.A.D. Triangulation station Meades Ranch in Kansas was held fixed. Its position is latitude $39^{\circ}13'26.686''$, longitude $98^{\circ}32'30.506''$ 1927 N.A.D. (see p. 170). The shift necessary to convert geodetic coordinates from the old to the new datum varies from zero to about 100 feet in latitude and a similar amount in longitude. The displacement increases with the distance from the fixed point.

In this publication, 1927 N.A.D. values are so labeled. They are used where they are available or where the

conversion is practical. No change is made where it is desirable to retain the historical value or where the accuracy of the original determination does not warrant it.

English units of measure are retained in this publication because of its historical nature. Distances are given in miles and feet and sometimes in yards or chains. A chain is 66 feet, and there are 100 links in a chain. Some old surveys are recorded in perches, which are a fourth of a chain, equivalent to a rod.

Because of the adoption of the metric system in the United States, and the conversion which is now in progress, conversion tables are given here for the convenience of the reader.

All boundary lines should be well marked, the size and character of the marks depending on the importance of the line. (See figs. 1, 2.) Many State boundaries, even some run in recent years, have been very



FIGURE 1.—Boundary monuments. *A*, The mark farthest north on the Lake of the Woods meridian boundary; *B*, monument on the Mexican boundary.



FIGURE 2.—State boundary monuments. *A*, Northeast corner of Connecticut; *B*, corner between Rhode Island, Massachusetts, and Connecticut; *C*, north end of line between New York and Pennsylvania; *D*, monument 20 on Mason and Dixon Line. Photographs by Erwin Griswold.

TABLE 1.—Conversion of feet to metres
(From Department of the Army Technical Manual TM 5-236: 1 square mile equals 2 590 square kilometres, 1 acre equals 0.407 hectares)

Feet	Metres	Feet	Metres	Feet	Metres	Feet	Metres	Feet	Metres
0	0.0	50	15.24003	100	30.48006	150	45.72009	200	60.96012
1	0.30480	1	15.54483	1	30.78486	1	46.02469	1	61.26492
2	0.60960	2	15.84963	2	31.08966	2	46.32969	2	61.56972
3	0.91440	3	16.15443	3	31.39446	3	46.63449	3	61.87452
4	1.21920	4	16.45923	4	31.69926	4	46.93929	4	62.17932
5	1.52400	5	16.76403	5	32.00406	5	47.24409	5	62.48412
6	1.82880	6	17.06883	6	32.30886	6	47.54890	6	62.78893
7	2.13360	7	17.37363	7	32.61367	7	47.85370	7	63.09373
8	2.43840	8	17.67844	8	32.91847	8	48.15850	8	63.39853
9	2.74321	9	17.98324	9	33.22327	9	48.46330	9	63.70333
10	3.04801	60	18.28804	110	33.52807	160	48.76810	210	64.00813
1	3.35281	1	18.59284	1	33.83287	1	49.07290	1	64.31293
2	3.65761	2	18.89764	2	34.13767	2	49.37770	2	64.61773
3	3.96241	3	19.20244	3	34.44247	3	49.68250	3	64.92253
4	4.26721	4	19.50724	4	34.74727	4	49.98730	4	65.22733
5	4.57201	5	19.81204	5	35.05207	5	50.29210	5	65.53213
6	4.87681	6	20.11684	6	35.35687	6	50.59690	6	65.83693
7	5.18161	7	20.42164	7	35.66167	7	50.90170	7	66.14173
8	5.48641	8	20.72644	8	35.96647	8	51.20650	8	66.44653
9	5.79121	9	21.03124	9	36.27127	9	51.51130	9	66.75133
20	6.09601	70	21.33604	120	36.57607	170	51.81610	220	67.05613
1	6.40081	1	21.64084	1	36.88087	1	52.12090	1	67.36093
2	6.70561	2	21.94564	2	37.18567	2	52.42570	2	67.66574
3	7.01041	3	22.25044	3	37.49047	3	52.73051	3	67.97054
4	7.31521	4	22.55524	4	37.79528	4	53.03531	4	68.27534
5	7.62002	5	22.86005	5	38.10008	5	53.34011	5	68.58014
6	7.92482	6	23.16485	6	38.40488	6	53.64491	6	68.88494
7	8.22962	7	23.46965	7	38.70968	7	53.94971	7	69.18974
8	8.53442	8	23.77445	8	39.01448	8	54.25451	8	69.49454
9	8.83922	9	24.07925	9	39.31928	9	54.55931	9	69.79934
30	9.14402	80	24.38405	130	39.62408	180	54.86411	230	70.10414
1	9.44882	1	24.68885	1	39.92888	1	55.16891	1	70.40894
2	9.75362	2	24.99365	2	40.23368	2	55.47371	2	70.71374
3	10.05842	3	25.29845	3	40.53848	3	55.77851	3	71.01854
4	10.36322	4	25.60325	4	40.84328	4	56.08331	4	71.32334
5	10.66802	5	25.90805	5	41.14808	5	56.38811	5	71.62814
6	10.97282	6	26.21285	6	41.45288	6	56.69291	6	71.93294
7	11.27762	7	26.51765	7	41.75768	7	56.99771	7	72.23774
8	11.58242	8	26.82245	8	42.06248	8	57.30251	8	72.54255
9	11.88722	9	27.12725	9	42.36728	9	57.60732	9	72.84735
40	12.19202	90	27.43205	140	42.67209	190	57.91212	240	73.15215
1	12.49682	1	27.73686	1	42.97689	1	58.21692	1	73.45695
2	12.80163	2	28.04166	2	43.28169	2	58.52172	2	73.76175
3	13.10643	3	28.34646	3	43.58649	3	58.82652	3	74.06655
4	13.41123	4	28.65126	4	43.89129	4	59.13132	4	74.37135
5	13.71603	5	28.95606	5	44.19609	5	59.43612	5	74.67615
6	14.02083	6	29.26086	6	44.50089	6	59.74092	6	74.98095
7	14.32563	7	29.56566	7	44.80569	7	60.04572	7	75.28575
8	14.63043	8	29.87046	8	45.11049	8	60.35052	8	75.59055
9	14.93523	9	30.17526	9	45.41529	9	60.65532	9	75.89535

TABLE 2.—Conversion of miles to kilometres

Miles	Kilometres	Miles	Kilometres	Miles	Kilometres	Miles	Kilometres	Miles	Kilometres
0	0	50	80.467	100	160.935	150	241.402	200	321.869
1	1.609	1	82.077	1	162.544	1	243.011	1	323.479
2	3.219	2	83.686	2	164.153	2	244.621	2	325.088
3	4.828	3	85.295	3	165.763	3	246.230	3	326.697
4	6.437	4	86.905	4	167.372	4	247.839	4	328.307
5	8.047	5	88.514	5	168.981	5	249.448	5	329.916
6	9.656	6	90.123	6	170.591	6	251.058	6	331.526
7	11.265	7	91.733	7	172.200	7	252.668	7	333.135
8	12.875	8	93.342	8	173.809	8	254.277	8	334.744
9	14.484	9	94.951	9	175.419	9	255.886	9	336.354
10	16.093	60	96.561	110	177.028	160	257.496	210	337.963
1	17.703	1	98.170	1	178.638	1	259.105	1	339.572
2	19.312	2	99.780	2	180.247	2	260.714	2	341.182
3	20.922	3	101.389	3	181.856	3	262.324	3	342.791
4	22.531	4	102.998	4	183.466	4	263.933	4	344.400
5	24.140	5	104.608	5	185.075	5	265.542	5	346.010
6	25.750	6	106.217	6	186.684	6	267.152	6	347.619
7	27.359	7	107.826	7	188.294	7	268.761	7	349.228
8	28.968	8	109.436	8	189.903	8	270.370	8	350.838
9	30.578	9	111.045	9	191.512	9	271.980	9	352.447
20	32.187	70	112.654	120	193.122	170	273.589	220	354.056
1	33.796	1	114.264	1	194.731	1	275.198	1	355.666
2	35.406	2	115.873	2	196.340	2	276.808	2	357.275
3	37.015	3	117.482	3	197.950	3	278.417	3	358.884
4	38.624	4	119.092	4	199.559	4	280.026	4	360.494
5	40.234	5	120.701	5	201.168	5	281.636	5	362.103
6	41.843	6	122.310	6	202.778	6	283.245	6	363.712
7	43.452	7	123.920	7	204.387	7	284.854	7	365.322
8	45.062	8	125.529	8	205.996	8	286.464	8	366.931
9	46.671	9	127.138	9	207.606	9	288.073	9	368.541
30	48.280	80	128.748	130	209.215	180	289.682	230	370.150
1	49.890	1	130.357	1	210.824	1	291.292	1	371.759
2	51.499	2	131.966	2	212.434	2	292.901	2	373.369
3	53.108	3	133.576	3	214.043	3	294.511	3	374.978
4	54.718	4	135.185	4	215.653	4	296.120	4	376.587
5	56.327	5	136.795	5	217.262	5	297.729	5	378.197
6	57.936	6	138.404	6	218.871	6	299.339	6	379.806
7	59.546	7	140.013	7	220.481	7	300.948	7	381.415
8	61.155	8	141.623	8	222.090	8	302.557	8	383.025
9	62.765	9	143.232	9	223.699	9	304.167	9	384.634
40	64.374	90	144.841	140	225.309	190	305.776	240	386.243
1	65.983	1	146.451	1	226.918	1	307.385	1	387.853
2	67.593	2	148.060	2	228.527	2	308.995	2	389.462
3	69.202	3	149.669	3	230.137	3	310.604	3	391.071
4	70.811	4	151.279	4	231.746	4	312.213	4	392.681
5	72.421	5	152.888	5	233.355	5	313.823	5	394.290
6	74.030	6	154.497	6	234.965	6	315.432	6	395.899
7	75.639	7	156.107	7	236.574	7	317.041	7	397.509
8	77.249	8	157.716	8	238.183	8	318.651	8	399.118
9	78.858	9	159.325	9	239.793	9	320.260	9	400.727

inadequately marked, by blazes on trees or by stones so small that they could be easily carried off. Hundreds of thousands of dollars spent in litigation and in the resurvey of old lines would have been saved had the lines been properly marked when first run. Many lines have marks at intervals of 1 mile. A better rule to follow is to place the marks in such a way that from any one of them two others may be seen; therefore, all obstructing trees and brush should be cleared away. Marks should also be placed at road crossings and other important points.

A State-line mark should project not less than 3 feet above ground (4 feet is better) and should be so firmly set that it cannot be easily overturned nor disturbed by frost. These conditions are most easily met by constructing monuments of concrete or of metal posts set on concrete bases. Each monument should have the State names on opposite sides; it should bear also the year of survey, an identifying number, and, if practicable, a reference to the treaty or act in accordance with which the line was run. The following specifications were prepared for the monuments on the New York-Connecticut boundary, survey of 1909-10, and are quoted as affording examples of adequate marks:

The monuments are to be of good-quality light-colored granite, free from seams or other defects, straight and of full size throughout, not less than 9 nor more than 10 feet in length, 12 inches square 4 feet down from the top, tapering from 12 inches square to not over 15 inches square in the next 1½ feet and not less than 12 inches nor more than 20 inches on any face the rest of the distance. The top and the four sides of each monument for a distance of 4 feet from the top are to be cut smooth at right angles with each other and finished with 6-cut work. The tapering portion to be pointed to a smooth even surface to conform to the dimensions given. The remaining portions to be left as split, but full size, not less than 12 inches square throughout, the bottom to be not less than 12 inches square and substantially at right angles to the sides, and every point of the lower 5 feet of the stone must lie outside the planes of the smooth-cut portion. On one side will be cut the letters "N. Y."; on the opposite side will be cut the letters "CONN." On the third side will be cut the figures "1909." . . . Additional similar letters shall be cut as may be ordered. . . . The letters "N. Y." and "CONN." are to be 5 inches high; the figures to be 4 inches high. All letters to be cut with V-shaped indentations at least ¼ inch deep.

These monuments were set in concrete bases 4 feet square and 5 feet deep.

The most recent practice in marking curved or crooked boundaries is to make them a series of connected straight lines; for water boundaries, suitable reference marks are set on shore. This plan was authorized by the British treaty of 1908 for the rivers on

the Canadian boundary and was adopted in marking the Massachusetts-Rhode Island line.

The boundary marks should be protected by law and should be inspected frequently and repaired whenever necessary. Some States provide for such attention—New York at 3-year intervals, Pennsylvania and Massachusetts at 5-year intervals.¹⁸

A U.S. statute, approved March 4, 1909, makes it a misdemeanor to molest any monument or witness tree on a Government survey. It provides as follows:

Whoever shall willfully destroy, deface, change, or remove to another place any section corner, quarter-section corner, or meander-post on any Government line of survey, or shall willfully cut down any witness tree or any tree barked to mark the line of a Government survey, or shall willfully deface, change, or remove any monument or bench mark of any Government survey, shall be fined not more than two hundred and fifty dollars, or imprisoned not more than six months, or both [Crim. Code, sec. 57, 35 Stat. L. 1099].

The necessity for preserving boundary marks was recognized by Moses, who wrote (Deuteronomy xix, 14): "Thou shalt not remove thy neighbor's landmark."

Many references to court decisions regarding boundaries can be found in the following publications:

- Clark, F. E., 1922, A treatise on the law of surveying and boundaries: Indianapolis, Bobbs-Merrill Co., chap. 21.
Lawyers Cooperative Publishing Co., 1928, Digest of U.S. Supreme Court reports, Boundaries: Rochester, N.Y., v. 3, p. 1339-1357.
Mack, William, 1910, Cyclopaedia of law and procedure: New York, American Law Book Co., v. 36, p. 842.
Mack, William, 1910, Cyclopaedia of law and procedure: New York, American Law Book Co., v. 36, p. 842.
McKinley, W. M., and Rich, B. A., Ruling case law, 1914, Boundaries, v. 4, p. 77-132; 1916, States, v. 25, p. 373-376.
Michie, T. J., 1905, The encyclopedia of Supreme Court reports: Charlottesville, Va., v. 3, p. 494-507.
Moore, J. B., 1906, A digest of international law: 56th Cong., 2d sess., H. Doc. 551, v. 1, p. 272, 273, 618, 619, 747.
Skelton, R. H., 1930, The legal elements of boundaries and adjacent properties: Indianapolis.
Taylor, R. H., 1874, A treatise on the law of boundaries and fences: Albany, William Gould & Sen.

BOUNDARIES OF THE UNITED STATES

PROVISIONAL TREATY WITH GREAT BRITAIN, 1782

The original limits of the United States were first definitely described in the provisional treaty concluded with Great Britain November 30, 1782. The second article of that treaty defines them as follows (see fig. 3)¹⁹ (Malloy, 1910, v. 1, 581):

¹⁸ See New York laws for 1887, chap. 421, and for 1892, chap. 678; Pennsylvania act approved May 4, 1869; and Massachusetts Revised Laws, chap. 1, sec. 4.

¹⁹ The north end of the western boundary of the Louisiana Purchase, as shown in figs. 2, 27, 34, 35, and 43, is slightly in error. From a point on the boundary 30 miles south of the 49th parallel, the line should run north-eastward instead of northward, so as to exclude the St. Mary River drainage basin from the Louisiana Purchase area.

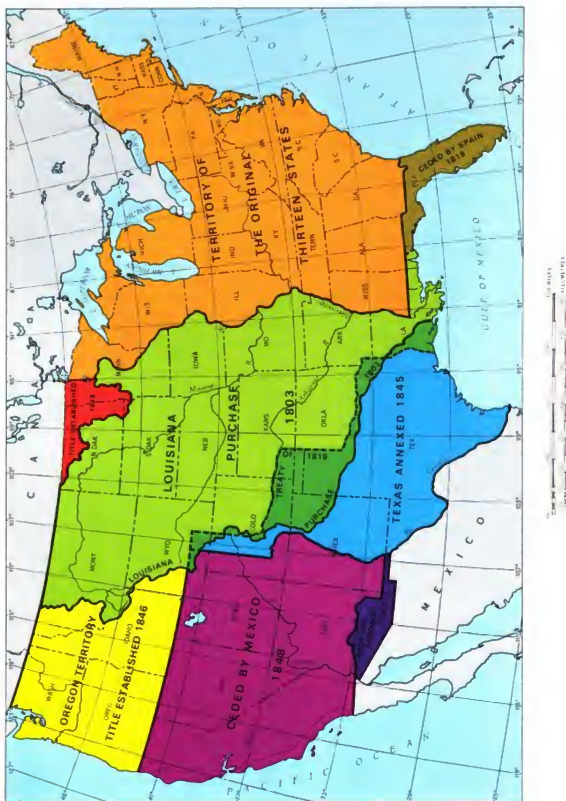


FIGURE 3.—Conterminous United States, showing accessions of territory from 1803 to 1853.

BOUNDARIES OF THE UNITED STATES AND THE SEVERAL STATES

ARTICLE II. From the northwest angle of Nova Scotia, viz. that angle which is formed by a line drawn due north from the source of St. Croix River to the highlands; along the highlands which divide those rivers that empty themselves into the river St. Lawrence, from those which fall into the Atlantic Ocean, to the northwesternmost head of Connecticut River; thence down along the middle of that river to the 45th degree of north latitude; from thence by a line due west on said latitude until it strikes the river Iroquois or Cataraqui [St. Lawrence]; thence along the middle of said river into Lake Ontario, through the middle of said lake until it strikes the communication by water between that lake and Lake Erie; thence along the middle of said communication into Lake Erie, through the middle of said lake until it arrives at the water communication between that lake and Lake Huron; thence along the middle of said water communication into the Lake Huron; thence through the middle of said lake to the water communication between that lake and Lake Superior; thence through Lake Superior northward of the lakes Royal and Philippeaux, to the Long Lake; thence through the middle of said Long Lake, and the water communication between it and the Lake of the Woods, to the said Lake of the Woods; thence through the said lake to the most northwestern point thereof, and from thence on a due west course to the river Mississippi; thence by a line to be drawn along the middle of the said river Mississippi until it shall intersect the northernmost part of the 31st degree of north latitude. South, by a line to be drawn due east from the determination of the line last mentioned, in the latitude of 31 degrees north of the equator, to the middle of the river Apalachicola or Catouchie; thence along the middle thereof to its junction with the Flint River; thence straight to the head of St. Mary's River; and thence down along the middle of St. Mary's River to the Atlantic Ocean. East, by a line to be drawn along the middle of the river St. Croix, from its mouth in the bay of Fundy to its source, and from its source directly north to the aforesaid highlands which divide the rivers that fall into the Atlantic Ocean from those which fall into the river St. Lawrence; comprehending all islands within twenty leagues of any part of the shores of the United States, and lying between lines to be drawn due east from the points where the aforesaid boundaries between Nova Scotia on the one part and East Florida on the other, shall respectively touch the Bay of Fundy and the Atlantic Ocean, excepting such islands as now are, or heretofore have been, within the limits of the said province of Nova Scotia. [See p. 104 for a separate article attached to this treaty.]

TREATY WITH GREAT BRITAIN. 1783

The definite treaty of peace with Great Britain, concluded September 3, 1783, defines the boundaries of the United States in terms similar to those of the provisional treaty.

The northern boundary became at once a fruitful source of dissension between the two countries. From the time of the conclusion of peace almost to the present day the definite location of this line has been the subject of a series of treaties, commissions, and surveys. An outline history of the settlement of this dispute follows.

TREATY OF LONDON. 1794

The fourth article of the treaty of London, signed November 19, 1794, provided that

Whereas it is uncertain whether the river Mississippi extends so far to the northward as to be intersected by a line to be drawn due west from the Lake of the Woods, in the manner mentioned in the treaty of peace between His Majesty and the United States: * * * the two parties will proceed, by amicable negotiations, to regulate the boundary line in that quarter.

This matter was not settled, however, until 1818.

The fifth article of the same treaty makes provision for settling another doubtful point, as follows:

Whereas doubts have arisen what river was truly intended under the name of the river St. Croix, mentioned in the said treaty of peace, and forming a part of the boundary therein described: that question shall be referred to the final decision of commissions to be appointed in the following manner, viz. * * *

Here follow provisions that His Majesty and the President of the United States should each appoint a commissioner, and that these two commissioners should agree on a third, or if they should fail to agree on the third, he was to be chosen by lot in their presence.

Which was the true St. Croix River had been a matter of controversy between the governments of Massachusetts and Nova Scotia since the year 1764.

The commissioners appointed under the foregoing provisions decided, on October 25, 1798, that the river called Schoodiac and the northern branch thereof (called Chepunnaticook) is the true River St. Croix, and that its source is at the northernmost headspring of the northern branch aforesaid (Gallatin, 1840, p. 5). A monument was erected at that spot under the direction of the commissioners.

TREATY OF GHENT. 1814

By the treaty of peace concluded at Ghent December 24, 1814, it was agreed to provide for a final adjustment of the boundaries described in the treaty of 1783 that had not yet been determined. The boundaries in question embraced certain islands in the Bay of Fundy and the whole of the boundary line from the source of the River St. Croix to the most northwestern point of the Lake of the Woods (Malloy, 1913, v. 1, p. 615).

By the fourth article, provision was made for the appointment of commissioners to settle the title to several islands in the Passamaquoddy Bay, which is a part of the Bay of Fundy, and the island of Grand Manan, in the Bay of Fundy. The fifth article made provision for the appointment of commissioners to settle the boundary from the source of the River St. Croix to the Iroquois or Cataraqui (St. Lawrence) River. The sixth and seventh articles provided for commissioners to continue the line to the Lake of the Woods.

It was provided by this treaty that in case any of the boards of commissioners were unable to agree they should make separately or jointly a report or reports

to their respective governments stating the points on which they differed and the grounds on which they based their respective opinions. These reports were to be referred to some friendly sovereign or State for arbitration.

The first and third boards of commissioners mentioned above came to agreements, and the parts of the boundary referred to them were thus finally determined; but the commissioners appointed under the fifth article, after sitting nearly 5 years, could not agree on any of the matters referred to them, nor even on a general map of the country exhibiting the boundaries respectively claimed by each party. They accordingly made separate reports to their governments, as provided in the treaty.

The first of these commissions awarded Moose, Dudley, and Frederick Islands to the United States and all other islands in Possamaguddy Bay and the island of Grand Manan to Great Britain.

The following is the text of the report (Malloy, 1910, v. 1, p. 621) of the third of these commissions, which had under consideration that part of the northern boundary between the point where the 45th parallel of north latitude strikes the St. Lawrence and the point where the boundary reaches Lake Superior:

Decision of the commissioners under the sixth article of the treaty of Ghent, done at Utica, in the State of New York, 18th June, 1822.

[We] do decide and declare that the following-described line (which is more clearly indicated on a series of maps accompanying this report, exhibiting correct surveys and delineations of all rivers, lakes, water communications, and islands embraced by the sixth article of the treaty of Ghent, by a black line shaded on the British side with red, and on the American side with blue; and each sheet of which series of maps is identified by a certificate, subscribed by the commissioners, and by the two principal surveyors employed by them), is the true boundary intended by the two before-mentioned treaties, that is to say:

Beginning at a stone monument, erected by Andrew Ellicott, esq., in the year of our Lord 1817, on the south bank, or shore, of the said river Iroquois or Cataraque (now called the St. Lawrence), which monument bears south 74°45' west, and in 1,640 yards distant from the stone church in the Indian village of St. Regis, and indicates the point at which the forty-fifth parallel of north latitude strikes the said river; thence running north 35°45' west into the river, on a line at right angles with the southern shore, to a point 100 yards south of the opposite island, called Cornwall Island; thence turning westerly and passing around the southern and western sides of said island, keeping 100 yards distant therefrom, and following the curvatures of its shores, to a point opposite to the northwest corner, or angle, of said island; thence to and along the middle of the main river, until it approaches the eastern extremity of Barnhart's Island; thence northerly, along the channel which divides the last-mentioned island from the Canada shore, keeping 100 yards distant from the island, until it approaches Sheik's Island, thence along the middle of the strait which divides Barnhart's and Sheik's islands to the channel called the Long Sault, which separates the two last-mentioned islands from the lower Long Sault Island; thence westerly (crossing the center of the last-mentioned channel) until it approaches within 100 yards of the north shore of the Lower Sault Island; thence up the north branch of the river, keeping to the north of, and near, the Lower Sault Island, and also north of, and near, the Upper Sault

(sometimes called Baxter's Island, and south of the two small islands, marked on the map A and B, to the western extremity of the Upper Sault, or Baxter's Island; thence passing between the two islands called the Cats, to the middle of the river above; thence along the middle of the river, keeping to the north of the small islands marked C and D; and north also of Chrysler's Island and of the small island next above it, marked E, until it approaches the northeast angle of Goose Neck Island; thence along the passage which divides the last-mentioned island from the Canada shore, keeping 100 yards from the island to the upper end of the same; thence south of, and near, the two small islands called the Nut Islands; thence north of, and near, the island marked F, and also of the island called Dry or Smuggler's Island; thence passing between the islands marked G and H, to the north of the island called Isle au Rapit Plat; thence along the north side of the last-mentioned island, keeping 100 yards from the shore to the upper end thereof; thence along the middle of the river, keeping to the south of, and near, the islands called Cousson (or Tassin) and Presque Isle; thence up the river, keeping north of, and near, the several Gallop Isles numbered on the map 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10, and also of Tick, Tibbets, and Chimney islands; and south of, and near, the Gallop Isles, numbered 11, 12, and 13, and also of Duck, Drummond, and Sheep Islands; thence along the middle of the river, passing north of Island No. 14, south of 15, and north of 17, south of 18, 19, 20, 21, 22, 23, 24, 25, and 28, and north of 26* and 27; thence along the middle of the river, north of Gull Island, and of the islands No. 29, 32, 33, 34, 35, Bluff Island, and No. 39, 44, and 45, and to the south of No. 30, 31, 36, Grenadier Island, and No. 37, 38, 40, 41, 42, 43, 46, 47, and 48, until it approaches the east end of Well's Island; thence to the north of Well's Island, and along the strait which divides it from Rowe's Island, keeping to the north of the small islands No. 51, 52, 54, 58, 59, and 61, and to the south of the small islands numbered and marked 49, 50, 53, 55, 57, 60, and X, until it approaches the northeast point of Grindstone Island; thence to the north of Grindstone Island, and keeping to the north also of the small islands No. 63, 65, 67, 68, 70, 72, 73, 74, 75, 76, 77, and 78, and to the south of No. 62, 64, 66, 69, and 71, until it approaches the southern point of Hickory Island; thence passing to the south of Hickory Island, and of the two small islands lying near its southern extremity, numbered 79 and 80; thence to the south of Grand or Long Island, keeping near its southern shore, and passing to the north of Carlton Island, until it arrives opposite to the southwestern point of said Grand Island, in Lake Ontario; thence, passing to the north of Grenadier, Fox, Stony, and the Gallop islands, in Lake Ontario, and to the south of, and near, the islands called the Ducks to the middle of the said lake; thence westerly, along the middle of said lake, to a point opposite the mouth of the Niagara River; thence to and up the middle of the said river to the Great Falls; thence up the Falls through the point of the Horse Shoe, keeping to the west of Iris or Goat Island, and of the group of small islands at its head, and following the bends of the river so as to enter the strait between Navy and Grand islands; thence along the middle of said strait to the head of Navy Island; thence to the west and south of, and near to, Grand and Beaver Islands, and to the west of Strawberry, Squaw, and Bird

* The line is drawn south of No. 26 on the map filed in Washington.

islands, to Lake Erie*; thence southerly and westerly, along the middle of Lake Erie, in a direction to enter the passage immediately south of Middle Island, being one of the easternmost of the group of islands lying in the western part of said lake; thence along the said passage, proceeding to the north of Cunningham's Island, of the three Bass Islands, and of the Western Sisters; and to the south of the islands called the Hen and Chickens, and of the Eastern and Middle Sisters; thence to the middle of the mouth of the Detroit River, in a direction to enter the channel which divides Bois-Blanc and Sugar Islands; thence up the said channel to the west of Bois-Blanc Island, and to the east of Sugar, Fox, and Stony Islands, until it approaches Fighting or Great Turkey Island; thence along the western side, and near the shore of said last-mentioned island to the middle of the river above the same; thence along the middle of said river, keeping to the southeast of, and near, Hog Island, and to the northwest, of and near the island Isle à la Pêche, to Lake Saint Clair; thence through the middle of said lake in a direction to enter the mouth or channel of the river St. Clair, which is usually denominated the Old Ship Channel; thence along the middle of said channel, between Squirrel Island on the southeast, and Hersen's Island on the northwest, to the upper end of the last-mentioned island, which is nearly opposite to Point aux Chênes, on the American shore; thence along the middle of the river St. Clair, keeping to the west of, and near, the islands called Belle Rivière Isle, and Isle aux Cerfs, to Lake Huron; thence through the middle of Lake Huron, in a direction to enter the strait or passage between Drummond's Island on the west, and the Little Manitou Island on the east; thence through the middle of the passage which divides the two last-mentioned islands; thence turning northerly and westerly, around the eastern and northern shores of Drummond's Island, and proceeding in a direction to enter the passage between the island of St. Joseph's and the American shore, passing to the north of the intermediate islands No. 61, 11, 10, 12, 9, 6, 4, and 2, and to the south of those numbered 15, 13, 5, and 1; thence up the said last-mentioned passage, keeping near to the island St. Joseph's and passing to the north and east of Isle à la Croix, and of the small islands numbered 16, 17, 18, 19, and 20, and to the south and west of those numbered 21, 22, and 23, until it strikes a line (drawn on the map with black ink and shaded on one side of the point of intersection with blue, and on the other side with red), passing across the river at the head of St. Joseph's Island, and at the foot of the Neeshish Rapids, which line denotes the termination of the boundary directed to be run by the sixth article of the treaty of Ghent.

And the said commissioners do further decide and declare that all the islands lying in the rivers, lakes, and water communications, between the before-described boundary line and the adjacent shores of Upper Canada, do, and each of them does, belong to His Britannic Majesty, and that all the islands lying in the rivers, lakes, and water communications, between the said boundary line and the adjacent shores of the United States, or their territories, do, and each of them does, belong to the United States of America, in conformity with the true intent of the second article of the said treaty of 1783, and of the sixth article of the treaty of Ghent.

In accordance with the terms of the treaty of Ghent a survey was made of the St. Lawrence and the Great

Lakes, from which a map was drawn. This map was photolithographed and was published in 29 sheets by the U.S. Lighthouse Board in 1891. (See reference to resurvey under treaty of 1908, p. 20.)

CONVENTION WITH GREAT BRITAIN, 1818

The convention with Great Britain concluded October 20, 1818, extended the boundary line westward along the 49th parallel of latitude to the "Stony" (Rocky) Mountains and provided that the country beyond these mountains should for 10 years remain open to both parties. Two articles of the convention are as follows (Malloy, 1910, v. 1, p. 632):

ARTICLE II. It is agreed that a line drawn from the most north-western point of the Lake of the Woods, along the forty-ninth parallel of north latitude, or if the said point shall not be in the forty-ninth parallel of north latitude, then that a line drawn from the said point due north or south, as the case may be, until the said line shall intersect the said parallel of north latitude, and from the point of such intersection due west along and with the said parallel shall be the line of demarcation between the territories of the United States, and those of His Britannic Majesty, and that the said line shall form the northern boundary of the said territories of the United States, and the southern boundary of the territories of His Britannic Majesty, from the Lake of the Woods to the Stony Mountains.

ARTICLE III. It is agreed, that any country that may be claimed by either party on the northwest coast of America, westward of the Stony Mountains, shall, together with its harbours, bays, and creeks, and the navigation of all rivers within the same, be free and open, for the term of ten years from the date of the signature of the present convention, to the vessels, citizens, and subjects of the two Powers: It being well understood, that this agreement is not to be construed to the prejudice of any claim, which either of the two high contracting parties may have to any part of the said country, nor shall it be taken to affect the claims of any other Power or State to any part of the said country; the only object of the high contracting parties in that respect being to prevent disputes and differences amongst themselves.

The initial point of this boundary, which the convention fixed as "the most northwestern point" of the Lake of the Woods, was selected in 1824 by Dr. J. L. Tiarks, astronomer, and David Thompson, surveyor, who were employed by the British Government for this purpose, and their report was accepted by the U.S. commissioners. The point selected was about 27.5 miles north of the 49th parallel, in a swamp, where it was not feasible to establish a permanent mark, but astronomical observations were made at a reference point about 4,600 feet farther south. A pile of logs 12 feet high and 7 feet square was erected at this point, the remains of which were identified by the commissioners of 1872, who established an iron monument on the boundary a short distance from its site.²²

This monument was recovered by the commission of 1912 and reset in concrete. It is now known as boundary

* Horseshoe Reef, which is near the outlet of Lake Erie, was ceded to the United States Dec. 9, 1850, as a site for a lighthouse.

²²See U.S. Cong. (1877, p. 80-82), Internat. Joint Comm., United States and Canada (1917, p. 136; this book contains a bibliography of publications for the Lake of the Woods region), White (1914, p. 886), and Hinks (1921, p. 438-441).

mark 925, and its position is lat 49°22'39.6" N., long 95°09'11.6" W. (See fig. 1A.) Two reference marks were established in 1912, in lat 49°23'04.49" N., to fix a point which falls in water about half a mile north of boundary mark 925. This point was adopted by the treaty of 1925 as the north limit of the United States in the Lake of the Woods, in place of the northwesternmost angle. There are 13 metal monuments on the north-south boundary line from this point to the 49th parallel, of which No. 925 is the farthest north.

In 1824 negotiations were resumed between the two countries for the settlement, among other things, of the boundary west of the Rocky mountains, but no conclusion was reached; the British Government claimed that the boundary line should follow the 49th parallel westward to the point where this parallel strikes the great northwestern branch of the Columbia River, thence down the middle of that river to the Pacific Ocean.

In 1826 negotiations were resumed, and several compromises were proposed by both parties, but without satisfactory results. After this the whole matter remained in abeyance until the special mission of Lord Ashburton to this country in 1842.

Meanwhile the unsettled questions regarding the eastern part of the north boundary again came up. The case having reached that stage at which it became necessary to refer the points of difference to a friendly sovereign or State, the two powers found it expedient to regulate the proceedings and make provisions in relation to such reference, and on September 29, 1827, they concluded a convention to that end (Malloy, 1910, v. 1, p. 646; Moore, 1898, chap. 3, 4).

The respective claims of the United States and Great Britain were as follows (see fig. 4):

Boundary claimed by the United States: From the source of the River St. Croix (a point of departure mutually acknowledged) the boundary should be a due north line for about 140 miles, crossing the River St. John at about 75 miles. At about 97 miles it reaches a ridge or highland which divides tributary streams of the River St. John, which falls into the Bay of Fundy, from the waters of the River Ristigouche, which falls through the Bay des Chaleurs into the Gulf of St. Lawrence. In its further course the said due north line, after crossing several upper branches of the River Ristigouche, reaches, at about 140 miles, the highlands which divide the waters of the said River Ristigouche from the tributary streams of the River Metis, which falls into the River St. Lawrence. Thence the line should run westerly and southwesterly along the highlands which divide the sources of the several rivers (from the Metis to the St. Francis) that empty themselves into the River St. Lawrence—from the sources of the tributaries of the Rivers Ristigouche, St. John, Penobscot,

Kennebec, and Connecticut, all of which either mediately or immediately fall into the Atlantic Ocean.

Boundary claimed by Great Britain: From the source of the River St. Croix the boundary should be a due north line about 40 miles to a point at or near Mars Hill; then it should run westerly about 115 miles along the highlands that divide the sources of the tributaries of the River St. John from the sources of the River Penobscot to a spot called Metiamette Portage, near the source of the River Chaudiere.

From this point the line coincides with the line claimed by the United States as far as the northwesternmost head of the Connecticut River. Great Britain claimed one of several small streams to be the northwesternmost tributary of the Connecticut River, and the United States another.

The territory in dispute comprised an area of about 12,000 square miles. The British claims were based principally on a possible uncertainty as to the identity of the River St. Croix and the proper location of the "highlands."

The location of the source of the St. Croix was officially fixed by the declaration of commissioners in October, 1798. Its position as determined in 1899 is lat 45°56'37.007" N. and long 67°46'54.715" W. (U.S. Coast Geod. Survey, 1918, p. 30).

ARBITRATION BY KING OF THE NETHERLANDS

The King of the Netherlands was selected in 1829 by the two Governments as the arbiter, and each laid before him, in conformity with the provisions of the convention, all the evidence intended to be brought in support of its claim and two separate statements of the respective cases. His award, made in 1831, was as follows (Moore, 1898, p. 134-136):

We are of the opinion: That it will be suitable (il convient) to adopt, as the boundary of the two States, a line drawn due north from the source of the river St. Croix to the point where it intersects the middle of the thalweg of the river St. John; thence, the middle of the thalweg of that river, ascending it, to the point where the river St. Francis empties itself into the river St. John; thence, the middle of the thalweg of the river St. Francis, ascending it to the source of its southwesternmost branch, which source we indicate on the Map A* by the letter X, authenticated by the signature of our Minister of Foreign Affairs; thence, in a line drawn due west to the point where it unites with the line claimed by the United States

* The New York Public Library has a facsimile copy, 62 by 63 in., of the signed original map. Moore (1898) gives a corrected copy on a small scale.

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of America and delineated on the Map A: thence, by said line to the point at which, according to said map, it coincides with that claimed by Great Britain; and thence, the line traced on the map by the two Powers to the northwesternmost source of Connecticut River.

We are of the opinion that the stream situated farthest to the northwest, among these which fall into the northernmost of the three Lakes, the last of which bears the name of Connecticut Lake, must be considered as the northwesternmost head of Connecticut River.

We are of the opinion that it will be suitable to proceed to fresh operations to measure the observed latitude in order to mark out the boundary from river Connecticut along the parallel of the 45th degree of north latitude to the river Saint Lawrence, named in the treaties Troquet or Catasequy in such a manner, however, that, in all cases, at the place called Rouse's Point the territory of the United States of America shall extend to the fort erected at that place, and shall include said fort and its kilometrical radius.

However disposed the Government of the United States might have been to acquiesce in the decision of the arbitrer, it had not the power to change the boundaries of a State without the consent of the State. Against that alteration, the State of Maine entered a solemn protest by resolution of January 19, 1832, and the Senate of the United States accordingly refused to give its assent to the award.

The arbitration of the King of the Netherlands having failed, fruitless negotiations ensued for a period of 11

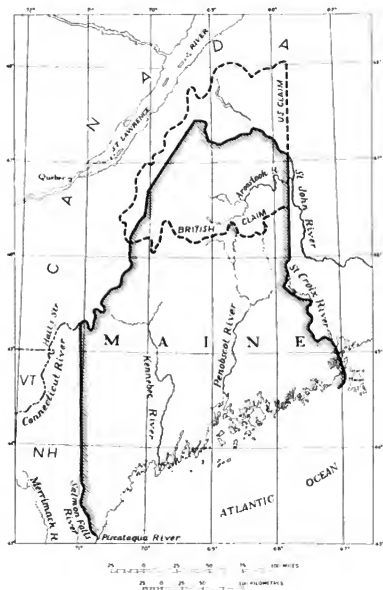


FIGURE 4.—Maine, showing the claims of the United States and Great Britain in 1827 and the present boundary.

years. Unsuccessful attempts were made to conclude an agreement preparatory to another arbitration. The subject became a matter of great irritation, collisions occurred in the contested territory, and for a time it seemed certain that the controversy would result in war between the two powers.

The Legislature of Maine placed a large sum at the disposal of the governor for the defense of the State's rights, and a bill was passed by Congress providing funds for the use of an army.

Massachusetts, being an interested party in the location of this boundary, appointed a committee to investigate the matter; its report was published March 20, 1838, as Senate Document 67.²⁴ Gallatin (1840) presents an excellent discussion of this dispute from the point of view of the United States; his book presents a small-scale copy of "Map A." White (1914a) treats of this boundary from the British viewpoint.²⁵

WEBSTER-ASHBURTON TREATY WITH GREAT BRITAIN. 1842

In 1842, however, Great Britain gave proof, by the special mission of Lord Ashburton to the United States, of her desire for the preservation of peace and an amicable arrangement of the matter at issue. The subject of this mission was the settlement of not only the northeastern boundary but also the northern boundary west of the Rocky Mountains. Regarding the latter boundary, Lord Ashburton's instructions gave as the ultimatum of the British Government the boundary as above claimed (p. 22), and his mission had no result as far as this particular boundary was concerned. An agreement was reached, however, in regard to the northeastern boundary, which, the consent of the State of Maine having been obtained, was embodied in the treaty concluded August 9, 1842. The following is the text of the part of this treaty relating to the boundary (Malloy, 1910, v. 1, p. 651):

ARTICLE I. It is hereby agreed and declared that the line of boundary shall be as follows: Beginning at the monument at the source of the river St. Croix as designated and agreed to by the Commissioners under the fifth article of the treaty of 1794, between the Governments of the United States and Great Britain; thence north, following the exploring line run and marked by the surveyors of the two Governments in the years 1817 and 1818, under the fifth article of the treaty of Ghent; to its intersection with the river St. John, and to the middle of the channel thereof; thence, up the middle of the main channel of the said river St. John, to the mouth of the river St. Francis; thence up the middle of the channel of the said river St. Francis, and of the lakes through which it flows, to the outlet of the Lake Pohénégamock; thence, southwesterly, in a straight line to a point on the northwest branch of the river St. John, which point shall be ten miles distant from the main branch of the St.

John, in a straight line, and in the nearest direction; but if the said point shall be found to be less than seven miles from the nearest point of the summit or crest of the highlands that divide those rivers which empty themselves into the river Saint Lawrence from those which fall into the river Saint John, then the said point shall be made to recede down the said northwest branch of the river St. John, to a point seven miles in a straight line from the said summit or crest; thence, in a straight line, in a course about south, eight degrees west, to the point where the parallel of latitude 46°25' north intersects the southwest branch of the St. John's; thence, southerly, by the said branch, to the source thereof in the highlands at the Mettiamette portage; thence, down along the said highlands which divide the waters which empty themselves into the river Saint Lawrence from those which fall into the Atlantic Ocean, to the head of Hall's Stream; thence down the middle of said stream, till the line thus run intersects the old line of boundary surveyed and marked by Valentine and Collins, previously to the year 1774, as the 45th degree of north latitude, and which has been known and understood to be the line of actual division between the States of New York and Vermont on one side and the British province of Canada on the other; and from said point of intersection, west, along the said dividing line, as heretofore known and understood, to the frequents or St. Lawrence River.

ARTICLE II. It is moreover agreed, that, from the place where the joint Commissioners terminated their labors under the sixth article of the treaty of Ghent, to wit, at a point in the Neebish Channel, near Muddy Lake, the line shall run into and along the ship-channel between Saint Joseph and St. Tammany Islands, to the division of the channel at or near the head of St. Joseph's Island; thence, turning easterly and northwardly around the lower end of St. George's or Sugar Island, and following the middle of the channel which divides St. George's from St. Joseph's Island; thence up the east Neebish Channel, nearest to St. George's Island, through the middle of Lake George; thence, west of Jones' Island, into St. Mary's River, to a point in the middle of that river, about one mile above St. George's or Sugar Island, so as to appropriate and assign the said island to the United States; thence, adopting the line traced on the maps by the Commissioners, thro' the river St. Mary and Lake Superior, to a point north of Ile Royale, in said lake, one hundred yards to the north and east of Ile Chapeau, which last-mentioned island lies near the northeastern point of Ile Royale, where the line marked by the Commissioners terminates; and from the last-mentioned point, southwesterly, through the middle of the sound between Ile Royale and the northwestern mainland, to the mouth of Pigeon River, and up the said river, to and through the north and south Fowl Lakes, to the lakes at the height of land between Lake Superior and the Lake of the Woods; thence, along the water communication to Lake Saagaingaga, and through that lake; thence to and through Cypress Lake, Lac du Bois Blanc, Lac la Croix, Little Vermilion Lake, and Lake Namecan and through the several smaller lakes, straits, or streams, connecting the lakes here mentioned, to that point in Lac la Pluie, or Rainy Lake, at the Chaudière Falls, from which the Commissioners traced the line to the most northwestern point of the Lake of the Woods; thence, along the said line, to the said most northwestern point, being in latitude 49°23'55" north, and in longitude 95°14'38" west from the

²⁴ See U. S. Cong. (1838) for a copy of report and map. See also, U. S. Cong. (1839a).

²⁵ For other references to this dispute, see Internal Boundary Comm., United States and Canada (1925), and Faris (1926, chap. 1).

observatory at Greenwich; ¹⁸ thence, according to existing treaties, due south to its intersection with the 49th parallel of north latitude, and along that parallel to the Rocky Mountains. It being understood that all the water communications and all the usual portages along the line from Lake Superior to the Lake of the Woods, and also Grand Portage, from the shore of Lake Superior to the Pigeon River, as now actually used, shall be free and open to the use of the citizens and subjects of both countries.

ARTICLE VII. It is further agreed that the channels in the river St. Lawrence, on both sides of the Long Sault islands and of Barnhart Island, the channels in the river Detroit on both sides of the island Bois Blanc, and between that island and both the American and Canadian shores, and all the several channels and passages between the various islands lying near the junction of the river St. Clair with the lake of that name, shall be equally free and open to the ships, vessels, and boats of both parties.¹⁹

By this treaty the United States obtained more than half of the disputed area, though nearly 1,000 square miles less than was awarded by the King of the Netherlands. The promise of reimbursement for the cost of surveys and other expenses, and the division of a large fund for timber cut in the disputed territory, no doubt influenced Maine in agreeing to the boundary as fixed by the treaty.

Commissioners acting under this treaty in 1843-47 surveyed the boundary line to a point where the 45th parallel intersects the St. Lawrence (U.S. Cong., 1848; New York [State] Univ., 1884, v. 2, p. 53).

The wording of the part of the treaty of 1783 relating to the northeastern boundary and its intent are so obvious that it seems strange that there should have been a dispute continuing for nearly 60 years regarding its interpretation. An English writer in 1911 characterizes the action of Great Britain as an "attempted theft" and states that "the British claim had no foundation of any sort or kind" (Mills, 1911, p. 684-687).

Ganong (1901), in a monograph on the boundaries of New Brunswick, after a lengthy discussion of the boundary dispute and of the treaty of 1842, states:

On the other hand, the few New Brunswickers of the present time who have examined the original sources of information have come to the conclusion that in the question of the northwest angle Maine was technically right and New Brunswick wrong, and that the Ashburton treaty took from Maine and gave to us a great territory to which we had not a technical right.

¹⁸ This is the position of the north mark as determined in 1824. See p. 14 for later determination.

¹⁹ By Article XXVI of the treaty with Great Britain of May 8, 1871, the St. Lawrence from its intersection with the 45th parallel to the sea was forever made "free and open for the purpose of commerce to the citizens of the United States."

That a contrary view was held by many Canadians may be inferred from an article in the Yearbook and Almanac of Canada for 1868 (quoted in New York [State] Univ., 1884, v. 2, p. 65-75).

TREATY WITH GREAT BRITAIN, 1846

Between 1843 and 1846 there was considerable discussion regarding the boundary west of the Rocky Mountains, resulting in the treaty of 1846, which defined the boundary as far west as the Strait of Juan de Fuca (fig. 5). The following is that part of the treaty which describes the boundary (Malloy, 1913, v. 1, p. 657):

ARTICLE I. From the point on the forty-ninth parallel of north latitude, where the boundary laid down in existing treaties and conventions between the United States and Great Britain terminates, the line of boundary between the territories of the United States and those of Her Britannic Majesty shall be continued westward along the forty-ninth parallel of north latitude to the middle of the channel which separates the continent from Vancouver's Island; and thence southerly through the middle of the said channel, and of Fuca's Straits, to the Pacific Ocean: Provided, however, that the navigation of the whole of the said channel and straits, south of the forty-ninth parallel of north latitude, remain free and open to both parties.

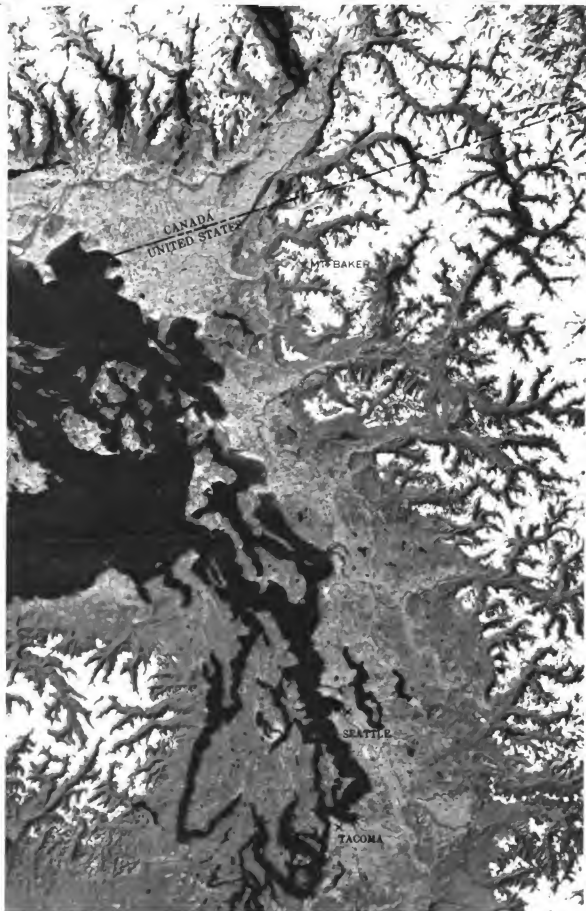
ARTICLE II. From the point at which the forty-ninth parallel of north latitude shall be found to intersect the great northern branch of the Columbia River, the navigation of the said branch shall be free and open to the Hudson's Bay Company, and to all British subjects trading with the same, to the point where the said branch meets the main stream of the Columbia, and thence down the said main stream to the ocean, with free access into and through the said river or rivers, it being understood that all the usual portages along the line thus described shall, in like manner, be free and open. In navigating the said river or rivers, British subjects, with their goods and produce, shall be treated on the same footing as citizens of the United States: it being, however, always understood that nothing in this article shall be construed as preventing, or intended to prevent, the Government of the United States from making any regulations respecting the navigation of the said river or rivers not inconsistent with the present treaty.

This treaty extended the line westward from the Rocky Mountains to the Pacific along the 49th parallel of latitude. This settled the northwest boundary with the exception of the islands and passages in the Straits of Georgia and of Juan de Fuca, England claiming that the boundary should properly run through the Rosario Strait, the most eastern passage, whereas the United States claiming that it should follow the Strait of Haro. This matter was finally settled by a reference to the Emperor of Germany as an arbitrator, who decided it in favor of the United States on October 21, 1872 (Malloy, 1913, v. 1, p. 725).

TREATY WITH GREAT BRITAIN, 1908

The treaty with Great Britain concluded April 11, 1908, described the boundary between the United States and Canada in eight sections and provided for the

FIGURE 5.—Mosaic of two Landsat images showing the Puget Sound region. The treaty with Great Britain in 1846 placed the boundary on the 49th parallel.



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appointment of a joint commission to recover or restore previously established marks and to place new marks on unmarked sections (Malloy, 1910, v. 1, p. 815).

Eight of the nine articles of this treaty contained the following statement:

The line so defined and laid down shall be taken and deemed to be the international boundary " * * * .

This, the commissioners decided, fixes the boundary in a definite position as marked, regardless of later changes which may occur in streams due to erosion, accretion, or avulsion.

TREATY WITH GREAT BRITAIN, 1910

In order to remove a slight uncertainty concerning the boundary line in Passamaquoddy Bay, a treaty with Great Britain (Charles 1913, p. 49) was concluded on May 21, 1910, which laid down the position of the line by courses and distances, starting from a point between Treat Island and Campobello Island, previously fixed by range lines, and running thence in a general southerly direction to the middle of Grand Manan Channel. Popes Folly Island and the lighthouse between Woodward Point and Cranberry Point were left within United States territory.

SURVEY AND MARKING OF THE NORTHERN BOUNDARY "

The retracement and remarking of the northern boundary of the United States from the summit of the Rocky Mountains to the Gulf of Georgia was completed in 1907. Since the treaty of 1908 was ratified, the fieldwork for the survey and marking of the remainder of the northern boundary has been completed. The computed lengths of the eight sections described in the treaty are as follows:

	Miles
Passamaquoddy Bay -----	125.2
St. Croix River from its source to its mouth -----	129.4
St. Lawrence River to source of St. Croix -----	670.3
Great Lakes and St. Lawrence River -----	1,298.9
Northwesternmost point of Lake of the Woods* to the mouth of Pigeon River at Lake Superior (scaled from map) -----	425.6
North point of Lake of the Woods (1925) to 49th parallel (26.6 miles), thence to summit of Rocky Mountains (860 miles) -----	886.6

* See report prepared for the Department of State by C. P. Anderson, 1908, on the northern boundary of the United States with particular reference to the parts thereof which require more complete definition and marking.

	Miles
Summit of Rocky Mountains to Strait (or Gulf) of Georgia at Point Roberts -----	418.5
Point Roberts to Pacific Ocean -----	142.0
	3,986.5

* Water boundary.

* Land and water boundary.

* See change in location by Article I, treaty of 1925.

* Land boundary.

Of the total, approximately 1,771 miles is land boundary and 2,216 miles is water boundary. The land part of the boundary is marked by metal, stone, or concrete monuments; the water part is defined by courses and distances between turning points (angles), and these points are referred to marks of metal or concrete on the banks or shores.

The final report (Internat. Boundary Comm., United States and Canada, 1925) for that part of the line from the source of the St. Croix to the St. Lawrence River includes historical data, copies of treaties, and geographic positions of all monuments. There are 4,204 monuments and 548 reference marks for this part of the boundary.

The full report of the resurvey and marking of St. Lawrence River and the Great Lakes has been published by the Canadian Government (Internat. Waterways Comm., 1916). It gives extracts from treaties, instructions to the commissioners, courses and distances between marks, and geographic positions and azimuths.

Two hundred sixty-nine points define this section of the boundary.

Typical of these points are:

Beginning at a point of origin, the intersection of the international boundary with the southeast shore of the St. Lawrence River near the 45th parallel of latitude in

Latitude 44°59'58.23"

Longitude 74°39'41.98"

and bearing N89°55'27.6"W, 106.6 feet from the boundary monument 774, near St. Regis, Quebec, erected jointly in 1902 by the Dominion of Canada and the State of New York

Thence due west 501388 feet along the middle of Lake Ontario to Turning Point 107 in

Latitude 43°37'51.5"

Longitude 78°41'26.76"

and bearing N30°04'12"W 107985 feet from Thirty Mile Point Light

The point at the mouth of the Pigeon River in Lake Superior is Turning Point number 269, and is in

Latitude 47°59'37.48"

Longitude 89°34'09.36"

and bears S68°09'00"E 283 feet from monument number 3 located on the Canadian side

in latitude 47°59'58.52"

longitude 89°34'13.82"

and also bearing N68°14'13.8"W 134.5 feet from Triangulation Station South Pigeon, situated on the United States side, established in 1908 by the boundary commission in

latitude 47°59'56.98"

longitude 89°34'08.12"

A complete list of the angle points of the boundary can be found in the report, which is on file with the International Boundary Commission.

Changes in the topography due to the construction of the St. Lawrence Seaway have made necessary the re-marking of the boundary where it follows the river. New monuments have been placed to reference by course and distance the position of angle points in the boundary which lie in the water (Internat. Boundary Comm., United States and Canada, 1967).

From the mouth of the Pigeon River to the northwest-most point in the Lake of the Woods, as relocated by the treaty of 1908, the water boundary is defined by courses and distances between turning points on the boundary lines, and these are referred to metal reference marks set in concrete or solid rock on the shores of the lakes and the banks of the streams (Internat. Boundary Comm., United States and Canada, 1931).

From the northwesternmost point of the Lake of the Woods to the summit of the Rocky Mountains, the boundary is composed of a north-south section, 26.6 miles long, which meets the 49th parallel at a point in the Lake of the Woods, and an east-west section, 860 miles long, approximately on the 49th astronomic parallel. This part of the boundary was first located in 1872 to 1876 and was marked by iron pillars, rock cairns, or earth mounds at intervals of 1 to 19 miles.²⁹ There were 382 marks in all, 40 of which were at astronomic stations. The cairns and earth mounds have now been replaced by iron monuments weighing about 400 pounds each (see fig. 1A) or, in the mountains, by aluminum-bronze monuments set on concrete foundations and projecting 5 feet above the surface. Additional monuments have been so placed that no interval between two consecutive marks exceeds 2½ miles. This survey was completed in 1913, and 40 maps covering the line have been published.

Boundary monuments along the 49th parallel may vary in latitude by as much as a second or more, because many of them were astronomic stations. It was not thought practical to move these to the true parallel, and the boundary is defined as the line joining successive stations.

In order to facilitate the enforcement of customs and immigration laws (35 Stat. 2189) the Federal Government by proclamation on June 15, 1908, reserved all unpatented public lands lying within 60 feet of the boundary line.

From the summit of the Rocky Mountains to the Strait of Georgia, 410 miles of land line on the 49th astronomic parallel was located by a joint commission between 1859 and 1862, and was marked by stone or iron pillars, rock piles, or mounds of earth at intervals

ranging from a fraction of a mile to 25 miles (Baker, 1900; Klotz, 1917, p. 382-387).³⁰ A retracement of this line was completed in 1907. The new marks consist of aluminum-bronze pillars 5 feet high, weighing about 250 pounds each, set in concrete bases at intervals not exceeding 4 miles. The maps of this section of the boundary, 19 sheets, have been published.

Along the 49th parallel in the Strait of Georgia, and through the Straits of Haro and Juan de Fuca to the Pacific Ocean, a distance of 142 miles, the boundary is defined by courses and distances between turning points, which are referred to reference marks consisting of concrete monuments and lighthouses on the shores. The report on this section of the boundary was published in 1921 (Internat. Boundary Comm., United States and Canada, 1921).

Considerable information regarding the northern boundary of the United States may be found in articles by John W. Davis (1922) and Lawrence S. Mayo (1923).

TREATY WITH GREAT BRITAIN, 1925

Several minor changes were made in the northern boundary by the treaty concluded February 24, 1925 (44 Stat., pt. 3, p. 2102).

The northern terminus of the Lake of the Woods boundary was fixed at lat 49°23'04.49" N., long 95°09'11.61" W. (See p. 14.) By this change the United States lost about 2½ acres of water area.

Article II of the treaty made the lines between monuments established under the treaty of 1908 on the 49th parallel east of the Rocky Mountains straight lines, not following the curve of the parallel. The United States gained between 30 and 35 acres of land by this change.

Article III added a new course bearing S. 34°42' W., a distance of 2,383 meters (1.48 miles), from the terminus of the southeasterly line established by the treaty of 1910 in the Grand Manan Channel, between Maine and New Brunswick. Canada thereby made a net gain in water area of about 9 acres, which had previously been of "controversial jurisdiction."

Article IV provided for inspection of existing monuments, repair of defective ones, and addition of new ones, if needed, by joint commissioners "at such times as they shall deem necessary."

²⁹ A report by the British commissioner with descriptions and longitudes of marks for this survey is given in U.S. Foreign Office correspondence, 1865-1871, v. 811, America, p. 1468.

³⁰ For details regarding the survey, see U.S. Cong. (1877).

Maintenance work and additional surveys for horizontal and vertical control have been carried out in compliance with this provision since 1925. A description of the work is published in the Report of the International Boundary Commission for 1937. This report carries the following reference to "The Official Maps:"

Article VII of the treaty of 1908 with regard to the boundary from the Gulf of Georgia (Georgia Strait) to the summit of the Rocky Mountains stipulates that "the entire course of said boundary, showing the location of the boundary monuments and marks established along the course of the boundary, shall be marked upon quadruplicate sets of accurate modern charts prepared or adopted for that purpose, and the said Commissioners, or their successors, are hereby authorized and required to so mark the line and designate the monuments on such charts, two duplicate originals of which shall be filed with each Government * * *". Similarly, with regard to the boundary from the summit of the Rocky Mountains to the Northwesternmost Point of Lake of the Woods, article VI of the treaty provides that "the said Commissioners shall mark upon quadruplicate sets of accurate modern charts prepared or adopted by them for that purpose the entire course of said boundary and the location of the boundary monuments and marks established along the course of said boundary, and two duplicate originals thereof shall be filed with each Government * * *".

The charts upon which the Commissioners have marked the boundary line from Georgia Strait to the Northwesternmost Point of Lake of the Woods, in accordance with these provisions of the treaty of 1908, are topographic maps prepared from surveys made by the field force of the Commission. The word "map" when used herein is synonymous with the word "chart" of the treaties. They consist of a series of 59 sheets, arranged and numbered as shown on an accompanying index map, together with a profile sheet. They were engraved on copper plates and printed from lithographic stones as were other similar boundary maps. The engraved plates will be preserved by the two Governments as permanent records of the work. The four official sets of maps, two for each Government, which bear the Commissioners' signatures, are transmitted in atlas form with this report.

The size of each map is 11 by 24½ inches inside the border. The conventional signs used to represent the topographic features are those used by the United States Geological Survey (which engraved sheets 1 to 19, inclusive), and are the same as those adopted by the United States Federal Board of Surveys and Maps. The boundary line, monuments, culture, and lettering appear in black; relief (contour lines and elevations) in brown; drainage, in blue; and timber, in green. The maps are constructed on polyconic projections on a scale of 1:62,500, each covering 30 minutes of longitude. At the top of each map are the title, the number of the sheet, copies of the seals of the two countries, and the names of the commissioners under whom the surveys were made.

TREATY WITH SPAIN, 1795

The southern boundary of the United States was described in definite terms by the treaties with Great Britain of 1782 and 1783 (see p. 12), but its location

was not accepted by Spain and was disputed by that country until settled by the treaty concluded October 27, 1795 (Malloy, 1910, v. 2, p. 1640), wherein it was agreed that

The southern boundary of the United States which divides their territory from the Spanish colonies of east and west Florida, shall be designated by a line beginning on the River Mississippi, at the northernmost part of the thirty-first degree of latitude north of the Equator, from thence shall be drawn due east to the middle of the River Apalachicola, or Catahouche, thence along the middle thereof to its junction with the Flint; thence straight to the head of St. Mary's River, and thence down the middle thereof to the Atlantic Ocean.

Article IV of this treaty described the western boundary, which separated the "Spanish colony of Louisiana" from the United States, as being

in the middle of the channel or bed of the River Mississippi, from the northern boundary of the said States to the completion of the thirty-first degree of latitude north of the Equator.

DISTANCES ALONG THE BOUNDARIES OF THE UNITED STATES

The distances given below are as projected on a sea-level plane. All these boundaries, on land as well as through water, consist of straight lines between "turning points." Some of these lines—in New Hampshire, for example—may be less than 50 feet long. The New Hampshire boundary, if measured in steps of a quarter of a mile, would be only 49 miles long.

Northern boundary		Miles
Atlantic Ocean to mouth of St. Croix River	-----	23.2
Mouth of St. Croix to source	-----	129.4
Source of St. Croix along northern line	-----	77.8
Westward along St. Johns River	-----	72.0
Along St. Francis River	-----	42.6
Diagonal line southwest	-----	83.6
Southwest branch of St. Johns to the highlands	-----	38.4
Along the highlands to the New Hampshire corner	-----	141.3
		610.1
New Hampshire:		
Maine corner to source of Halls Stream	-----	33.3
Halls Stream to north line of Vermont	-----	26.6
		59.9
Vermont: North line east and west on or near the 45th parallel to middle of main channel of Lake Champlain	-----	90.4
New York:		
Vermont corner in Lake Champlain west to St. Lawrence River	-----	54.5
Through St. Lawrence, Lake Ontario, Niagara River, and Lake Erie to Pennsylvania corner	-----	380.7
		445.2
Pennsylvania: Through part of Lake Erie	-----	41.5
Ohio: Through part of Lake Erie	-----	146.2
Michigan: North and west through lakes and rivers to Minnesota corner at mouth of Pigeon River	-----	720.5
Minnesota:		
Mouth of Pigeon River to northwest angle in Lake of the Woods	-----	425.6

Northwest angle in Lake of the Woods south to lat 49° N. -----	26.6
Along 49th parallel to North Dakota corner -----	93.3
-----	545.5
North Dakota: Along 49th parallel -----	310.0
Montana: Along 49th parallel -----	545.6
Idaho: Along 49th parallel -----	44.7
Washington: -----	
Along 49th parallel -----	285.5
Gulf of Georgia to Pacific Ocean opposite Cape Flattery -----	142.0
-----	427.5
-----	3,987.1
Southern boundary -----	
Texas (along Rio Grande, approximate) -----	1,241
New Mexico -----	179.5
Arizona (19.1 miles along Colorado River) -----	372.5
California -----	140.4
-----	1,933.4

ADDITIONS TO THE TERRITORY OF THE UNITED STATES³¹

In this paper, the phrase "territory of the United States" includes areas under the sovereignty or jurisdiction of the United States. These areas extend over a large part of the earth; from Barrow, Alaska, on the north to American Samoa on the south, and from the Palau Islands in the western Pacific to the Virgin Islands in the Atlantic. In places, for statistical purposes it is desirable to refer to the 48 States and the District of Columbia, excluding Alaska and Hawaii. The words "conterminous United States" are used in these places.

LOUISIANA PURCHASE

The entire basin of the Mississippi and its tributaries, and much of the coast region of the Gulf of Mexico which were subsequently known as the Territory of Louisiana, were originally claimed by La Salle³² in 1682 for France by virtue of discovery and occupation.

The area claimed on the Gulf extended west and south to the mouth of the "Rio de las Palmas," which was probably the stream now known as the Rio Grande.

In 1712, France made a grant to Antoine de Crozat of the exclusive right to the trade of this region. Because this grant gives the limits of the vast region as they were understood by France, a part of it is here quoted:

We have by these presents signed with our hand, authorized, and do authorize the said Sieur Crozat to carry on exclusively the trade in all the territories by us possessed, and bounded by New Mexico and by those of the English in Carolina, all the establishments, ports, harbors, rivers, and especially the port and harbor of Dauphin Island,

³¹ Mowry (1902, chap. 2-11) gives an excellent presentation of this subject, with many references.

³² For a translation of La Salle's proclamation, see Sparks (1847, v. 11, p. 221, 222). For reference to the location of the Rio de las Palmas, see Bandelier (1922, p. 42).

formerly called Massacre Island, the river St. Louis, formerly called the Mississippi, from the seashore to the Illinois, together with the river St. Philip, formerly called the Missouries River, and the St. Jerome formerly called the Wabash [the Ohio], with all the countries, territories, lakes in the land, and the rivers emptying directly or indirectly into that part of the river St. Louis. All the said territories, countries, rivers, streams, and islands we will be and remain comprised under the name of the government of Louisiana, which shall be dependent on the General Government of New France and remain subordinate to it, and we will, moreover, that all the territories which we possess on this side of the Illinois be united, as far as need be, to the General Government of New France and form a part thereof, reserving to ourselves, nevertheless, to increase, if we judge proper, the extent of the government of the said country of Louisiana.

This document indicates that France regarded Louisiana as comprising the drainage basin of the Mississippi at least as far north as the mouth of the Illinois and those branches of the Mississippi that enter it below this point, including the Missouri, but excluding land in the Southwest claimed by Spain. It is, moreover, certain that the area now comprised in Washington, Oregon, and Idaho was not included. Crozat surrendered this grant in 1717.

On November 3, 1762, France by a secret treaty ceded this region to Spain, defining it only as "the country known by the name of Louisiana," but Spain did not take possession until several years later. By the treaty of peace of 1763 between Great Britain, France, and Spain, the western boundary of the British possessions in the New World was placed in the center of the Mississippi River, thus reducing the area of Louisiana by the part east of the river. By these two treaties France disposed of her possessions in North America, dividing them between Great Britain and Spain. The limit set between the British and Spanish possessions was given as the Mississippi, the Iberville, and Lakes Maurepas and Pontchartrain. (See fig. 24, p. 106.) The Iberville River is now called Bayou Manchac. In the early days there was a connected waterway (now closed) through this river between the Mississippi and the Gulf of Mexico. The island thus formed was called the island of New Orleans.

Great Britain then subdivided her newly acquired province, Florida. The area south of lat 31° N. (changed in 1764 to a parallel through the mouth of the Yazoo River, approximately 32°28' N.) and west of the Apalachicola River was called West Florida; the region east thereof and south of the present north boundary of Florida received the name of East Florida. For the next 16 years these boundaries and names remained

undisturbed. In 1783, by the treaty of peace with the United States at the end of the Revolution, Great Britain reduced the area of West Florida by the cession of that portion north of the 31st parallel to the United States. In the same year she gave East Florida and what remained of West Florida to Spain, and in Spain's possession they remained for several years; but after 1803 the United States also claimed the area west of the Perdido River as part of the Louisiana Purchase. The treaty of 1819 put an end to the disputes (Malloy, 1910, v. 2, p. 1651; Cox, 1918).

Meantime, in 1800, by the secret treaty of San Ildefonso, Spain promised to return Louisiana to France. In the language of the treaty, she pledged herself to return to France "the colony and province of Louisiana, in the same extent it now has under the dominion of Spain and of other States."²³

Immediately after this transfer became known (November 1802), measures were instituted by President Jefferson for obtaining free access to the sea by way of the Mississippi River. Circumstances favored this negotiation. Bonaparte was at that time in almost daily expectation of a declaration of war by Great Britain, the first act of which would be to seize the mouth of the Mississippi and with it the Province of Louisiana. Under these circumstances Bonaparte offered to sell the Province to the United States, and the offer was promptly accepted.²⁴ The consideration named was 60 million francs and the assumption by the United States of the "French spoliation claims," which were estimated to amount to \$3,750,000. Article 3 of the treaty of cession, dated April 30, 1803, fixed the rate of exchange at 5.3333 francs to \$1. The total payments made by the United States on account of this purchase, including interest, amount to \$23,213,567.73. Opponents of this purchase strongly urged that it was contrary to the Constitution of the United States (Brown, 1920; Baldwin, 1894, p. 369-389).

The treaty of cession (Malloy, 1910, v. 1, p. 508) describes the territory only as being the same as that ceded by Spain to France by the treaty of San Ildefonso, from which the description was quoted. The territory sold thus apparently comprised that part of

the drainage basin of the Mississippi which lies west of the course of the river. (See fig. 3.) The claim of the United States to the area now comprised in Oregon, Washington, and Idaho in the negotiations with Great Britain regarding the northwestern boundary was ostensibly based not only upon prior occupation and upon purchase from Spain but also upon the alleged fact that this area formed part of the Louisiana Purchase. That this claim was baseless is shown not only by what has been already detailed regarding the limits of the purchase but also by the direct testimony of the French plenipotentiary, M. Barbe-Marbois. Some 20 years after the purchase he published a book on Louisiana (Barbe-Marbois, 1830), in which he described at some length the negotiations that preceded the purchase and, referring to this question, said: "The shores of the western ocean were certainly not comprised in the cession, but already the United States are established there."

There is also in Barbe-Marbois's book a map (dated 1829) of the country between the Mississippi and the Pacific, on which the western extent of Louisiana is indicated as the 110th meridian, which is not far from the western limit of the drainage basin of the Mississippi in Wyoming and Montana. On this map, that part of the country now comprised in Oregon, Washington, and Idaho, which, it has been claimed, formed part of the purchase, bears the following legend: "Territories and countries occupied by the United States, following the treaty of cession of Louisiana."

Obviously, therefore, the United States did not purchase Oregon as a part of Louisiana; however, it is no less certain that that great area west of the Rocky Mountains fell into its hands as a direct consequence of the Louisiana Purchase (Mowry, 1902, p. 131-157).

The claim made by the United States to the territory between the Mississippi and the Rio Grande as part of the Louisiana Purchase was based principally on the settlement made by La Salle at San Bernardo (now Matagorda) Bay, Tex., in 1685, and on many maps that indicated the area as part of the French possessions, but this claim was not recognized by Spain and the boundary west of the Mississippi River was undetermined until it was fixed at the Sabine River by the treaty of 1819 (Bancroft, 1889, v. 16, p. 46).

The treaty of 1783 with Great Britain describes the northern boundary of the United States in part as follows: From the northwesternmost point of the Lake of the Woods "on a due west course to the River Mississippi." The fact that such a line could not intersect the Mississippi proper at any point (see fig. 27) gave rise to many and serious disputes, which were not settled until after the date of the Louisiana Purchase. This clause of the treaty was understood by some geographers as placing the boundary line on the Lake of the Woods parallel for some 400 miles west from the lake

²³ U.S. 25th Cong., 1838, 2d sess., H. Rept. 818, p. 27; see p. 22 for the cession of 1762 from France to Spain.

²⁴ For copies of correspondence between the United States and various foreign officials, for dates from 1803 to 1807, relating to this purchase, its boundaries, and terms, see Robertson (1911, v. 2). See also U.S. Cong. (1903) and T. M. Marshall (1914, v. 2, p. 46-48). Marshall's book contains a bibliography (p. 242-251) of publications relating to the Louisiana Purchase.

to the point where it intersects the Missouri-Mississippi drainage basin, which in 1783 belonged to Spain, thus including the southern part of the basin of the Red River as United States territory. Other geographers who had given the subject careful study believed that the possessions of the United States in the northwest as defined by the treaty of 1783 were limited by the Mississippi River and a line extending north from its source (Lake Itasca³¹) to an intersection with the Lake of the Woods parallel (see below; Baker, 1887; Brower, 1893).

Still others considered the Red River basin south of the 49th parallel to be a part of the Louisiana Purchase. The Red River basin was not a part of La Salle's original claim, but it appears to have been occupied by the French earlier than 1762. The Verendrye brothers, French Canadians, were the first white men of record to explore the country from the site of Winnipeg westward to the Rocky Mountains (1738-1743). A map in Laut (1906) shows the Verendrye route as extending only as far south as northeastern Wyoming.

The treaty of 1763 between Great Britain, France, and Spain limited Great Britain's jurisdiction on the north-west by the Mississippi River, as will be seen from the following quotation from Article VII:

In order to re-establish peace on solid and durable foundations, and to remove forever all subject of dispute with regard to the limits of the British and French territories on the continent of America: it is agreed, that, for the future, the confines between the dominions of his Britannic Majesty, and those of his most Christian Majesty, in that part of the world, shall be fixed irrevocably by a line drawn along the middle of the River Mississippi, from its source to the River Iberville.

When this treaty was made, Great Britain apparently knew nothing of the secret treaty of the preceding year whereby France had ceded the Louisiana territory to Spain. It is evident, however, that Great Britain intended to relinquish all claim to jurisdiction over the area west of the Mississippi. In 1763 and for many years thereafter, the Mississippi was believed to rise considerably north of its actual known source. On the Mitchell map the source was said to be at about the "50th degree of latitude." Even if the area assigned to France did not extend as far north as lat 50° N., it apparently included all that part of the Red River drainage basin west of the actual source of the Mississippi.

The British act of 1774 extended the Province of Quebec to include the area west of Pennsylvania north of the Ohio River and east of the Mississippi. The boundaries were more definitely described in the commission issued to the governor in December of the same year, in part as follows:

³¹ Lake Itasca is generally referred to as the source of the Mississippi, but a creek about 4 miles in length that empties into the southern part of the lake has a source more than 100 feet above the lake. Lake Itasca is about 3½ miles in length. The name Itasca was coined by Schoelcraft in 1832 from parts of two Latin words, *veritas* (truth) and *caput* (head), three letters from each word being omitted.

*** along the bank of the said river [Ohio] westward to the banks of the Mississippi, and northward along the eastern bank of the said river to the southern boundary of the territory granted to the Merchant Adventurers of England trading to Hudson's Bay.

The Canadian General Government and the Province of Ontario have made extensive researches concerning the western boundary of Ontario, and the reports give an excellent historical review of the French, Spanish, and English claims to the country about the Lake of the Woods, including the Red River and Mississippi River drainage basins, from the first exploration down to 1818 and later. The reports fill several large volumes, and among them may be mentioned "Report of the select committee on the boundaries between the Province of Ontario and the unorganized territories of the Dominion," Ottawa, 1880, and "Correspondence, papers, and documents" *** relating to the northerly and westerly boundaries of Ontario," Toronto, 1882. A careful examination of these and other official documents fails to disclose any statement of claims by Great Britain to the area west of the Mississippi, east of the Rocky Mountains, and south of the Lake of the Woods parallel.

The commissioner for Ontario, in reporting to the lieutenant governor of that Province with reference to the boundary of Ontario, stated (p. 340 of the 1880 report) that

In framing the treaty of Paris a few years later [1762] the Imperial Government recognized the Mississippi as an existing territorial boundary. All the country east of that river and south of a line drawn through the middle of the Great Lakes to the most northwestern point of the Lake of the Woods was surrendered to the United States. All the country west of the Mississippi, extending south to 31° of north latitude and east to the Atlantic Ocean, was left to its former owners (Spain).

On the Faden map of 1783³² a heavy green line is drawn from the head of the Mississippi River to the Lake of the Woods. The boundary of the Hudson Bay territory, as fixed by the treaty of Utrecht, is indicated by a red line running east and west from the Lake of the Woods. West of the green line, west of the Mississippi River, and south of the red line, the area is marked "Louisiana," and in its northern part a river running northward is marked "Mississippi or Red River." If the evidence of this map may be accepted, the Red River area south of the Lake of the Woods parallel was considered as part of Louisiana.

³² The United States of North America, with British and Spanish territories according to the treaty; engraved by William Faden, 1783. Faden was, in June 1783, appointed geographer to the King.

In the printed "Observations" that accompany this map are the following:

The River Mississippi is known about 60 miles above the Falls of St. Anthony but is not navigable; its source is supposed by all travelers to be in about 46° N., therefore the line to be drawn W. from the Lake of the Woods till it strikes Mississippi will probably run on a parallel 3 degrees or 180 miles above its source.

But this boundary line, otherwise insignificant, seems to have been extended to the Lake of the Woods in 49° N. to approximate the United States to the boundary of the Hudson's Bay Company, in 49° N.

A south line should have been drawn from the Lake of the Woods to strike the Mississippi, as the west line beginning at 180 miles distance, if extended, would increase its distance from that river.

The map illustrating the route of the Lewis and Clark expedition of 1804-6, "from the original drawing by Wm. Clark," shows the boundary of Louisiana as including the drainage basin of the Missouri River north of the 49th parallel, and near the north end of the Lake of the Woods there is this note: "Northern boundary of the United States, lat. 49°37' N."

It seems probable that Congress considered the Red River basin (see fig. 27) as far north as the Lake of the Woods to be a part of the Louisiana Purchase, but no specific reference was made to it in any statute prior to 1834.

There were many who believed that the Louisiana Purchase extended even farther north than the 49th parallel and included the entire drainage basin of Missouri River. This uncertainty was settled by the treaty of 1818. James White (1914b, p. 842), after an extended review of this question, states: "The true northern boundary of Louisiana was the watershed of the Mississippi and Missouri Rivers." The approximate area of this "watershed" north of the 49th parallel is 12,300 square miles.

The Melish map, referred to in the treaty with Spain of 1819 (see p. 27), but printed before the convention with Great Britain of 1818 (see p. 14) was signed, shows the boundary line of the United States as extending due west from the northwesternmost point of the Lake of the Woods to the Red River, thence up that river to the Assiniboine, up that river, and by an irregular line westward so as to include the Missouri River drainage basin north of the 49th parallel.

This question is now a matter of historical interest only, for the boundary line was definitely fixed by the British treaty of 1818.

It has often been said that by the treaty of Utrecht¹⁷

(Freschet, 1715) of 1713 the 49th parallel was made the boundary line between Great Britain and the French Province of Louisiana, but a careful reading of the treaty fails to disclose any ground for this statement. It is doubtless true that during the negotiations which followed the signing of the treaty the British commission endeavored to have the 49th parallel fixed as the boundary and that the French commission contended for a boundary a degree or more farther north, but the commissioners failed to agree, and no latitude was mentioned in the treaty. Article X of this treaty provided for the appointment of "commissaries" to fix a boundary line between the Hudson Bay territory and the Louisiana territory. The "commissaries" were probably appointed, but no final decision resulted from their labors (Hermann, 1900, p. 55-59; Bond, 1912).

The western boundary of the Louisiana Purchase is the western boundary of the Mississippi drainage basin as claimed by La Salle. Whatever the northern and northeastern boundaries of the Louisiana Purchase may be considered, there is no doubt that they included the drainage basin of the Missouri south of the 49th parallel and the western drainage basin of the Mississippi from its source to the Gulf of Mexico.

FLORIDA PURCHASE¹⁸

The second addition to the territory of the United States consisted of the Floridas, ceded by Spain in 1819 in exchange for large areas west of the Mississippi River relinquished by the United States to Spain and the assumption by the United States of all claims of its citizens against Spain for damages received, to an amount not exceeding \$5 million, Spain likewise assuming responsibility for claims of its citizens against the United States.

From the date of the Louisiana Purchase, in 1803, the territory known as West Florida and bounded by the Mississippi River on the west, the Perdido on the east, the parallel of 31° on the north, and the Gulf of Mexico on the south, had been in dispute between the two countries. During at least part of this time it had been practically in the possession of the United States. The clause from the treaty of San Ildefonso quoted on page 24 was interpreted by Jefferson and others in this country to mean the inclusion of West Florida. Their reasoning was this: In 1800 Spain owned West Florida; West Florida was once a part of Louisiana; in 1800 Spain ceded Louisiana to France; she therefore ceded West Florida with it.

Spain, however, held that this was merely a treaty of recession, by which she gave back to France what France had given to her in 1762. As in 1762 she did

¹⁷ There are several printed copies of the treaty of Utrecht in the Library of Congress.

¹⁸ For a historical sketch of the Florida Purchase and of events leading to its acquisition, see Hunsdale (1893, p. 330-366) and Mowry (1902, chap. 4).

not own West Florida, she could not have ceded it to France. Barbe-Marbois, the French plenipotentiary, was very positive in stating that West Florida formed no part of the Louisiana Purchase, and that the south-eastern boundary of that purchase consisted of the Iberville River and Lakes Maurepas and Pontchartrain. (See fig. 24.)

Immediately after the Louisiana Purchase was acquired, the claim was made by the United States that it included most of West Florida and part of the Texas coast, but this claim was not entertained by Spain. In 1810 a revolution was effected in that part of West Florida lying west of the Pearl River, and application was made by the inhabitants for annexation to the United States. The governor of Louisiana, under instructions from Washington, at once took possession. Immediately a counter revolution was organized against him, but it was put down by force of arms, and in 1812 this part of West Florida was included in the State of Louisiana (2 Stat. L. 708). In the meantime the insurrection spread eastward and, although put down by the Spanish authorities, the movement received the sympathy of the United States, and Congress passed an act, approved January 15, 1811 (3 Stat. L. 471), authorizing the President, under certain specified contingencies, to use force in taking possession of East Florida and appropriating \$100,000 for carrying the act into effect.* In 1812 that part of West Florida lying between the Perdido and Pearl Rivers was annexed to the Territory of Mississippi. (See p. 105.)

The treaty of February 22, 1819, with Spain settled these conflicting claims (Cox, 1918; Paxson, 1924, chap. 16) by the following clause:

ARTICLE II. His Catholic Majesty cedes to the United States in full property and sovereignty, all the territories which belong to him, situated to the eastward of the Mississippi, known by the name of East and West Florida. The adjacent islands dependent on said province * * * are included in this article. [Malloy, 1910, v. 2, p. 1652; see also T. M. Marshall, 1914, p. 46-85.]

The third article in this treaty defines the boundary between the United States and the Spanish possessions in the Southwest as follows:

ARTICLE III. The boundary line between the two countries, west of the Mississippi, shall begin on the Gulf of Mexico, at the mouth of the river Sabine, in the sea, continuing north, along the western bank of that river, to the 32nd degree of latitude; thence, by a line due north to the degree of latitude where it strikes the Rio Roxo of Natchitoches, or Red River; then following the course of the Rio Roxo westward, to the degree of longitude 100 west from London,* and

23 from Washington; then, crossing the said Red River and running thence, by a line due north, to the river Arkansas; thence, following the course of the southern bank of the Arkansas, to its source in latitude 42 north; and thence, by that parallel of latitude to the South Sea. The whole being as laid down in Melish's map of the United States, published at Philadelphia, improved to the 1st of January, 1818. But if the source of the Arkansas River shall be found to fall north or south of latitude 42, then the line shall run from the said source due south or north, as the case may be, till it meets the said parallel of latitude 42, and thence, along the said parallel, to the South Sea: All the islands in the Sabine, and the said Red and Arkansas Rivers, throughout the course thus described, to belong to the United States; but the use of the waters, and the navigation of the Sabine to the sea, and of the said rivers Roxo and Arkansas, throughout the extent of the said boundary, on their respective banks, shall be common to the respective inhabitants of both nations.

This treaty was ratified promptly by the U.S. Senate, but Spain did not ratify it until October 20, 1820, which was after the time allowed for ratification had expired. The U.S. Senate again ratified it February 19, 1821, and it was proclaimed by the President February 22, 1821.

The western boundary of the United States south of lat 42° N. as fixed by this treaty was confirmed by Mexico by treaty concluded January 12, 1828, Mexico having in the meantime gained her independence from Spain. (Malloy, 1910, v. 1, p. 1082.)

TEXAS ACCESSION

The next acquisition of territory was that of the Republic of Texas, which was admitted as a State by joint resolution of December 29, 1845.⁴¹ The area which Texas brought into the Union was limited as follows, as defined by the Republic of Texas, December 19, 1836 (see fig. 29 and Laws of the Republic of Texas, 1838, Houston, v. 1, p. 133).

Beginning at the mouth of the Sabine River and running west along the Gulf of Mexico three leagues from land to the mouth of the Rio Grande, thence up the principal stream of said river to its source, thence due north to the forty-second degree of north latitude, thence along the boundary line as defined in the treaty between Spain and the United States to the beginning.

The claim by Texas to land north to the 42d parallel and west and south to the Rio Grande was based in

* The publication of this act before the end of the following session of Congress was forbidden by act of Mar. 3, 1811 (3 Stat. L. 472).

* The zero point of the London meridian is the cross on St. Paul's Cathedral in London, which is 0°05'40.355" (4.17 miles) west of Greenwich (Ordnance Survey of Great Britain, letter of Sept. 6, 1927). For reference to the establishment of the meridians of London and Greenwich, see *The Mariner's Mirror*, v. 13, no. 2, London, Cambridge Press, April, 1927. Longitudes on the Mitchell map of 1785 (see p. 2) are referred to the London meridian. The Melish map of 1818 has the degrees west of London indicated along the lower edge, and the degrees west of Washington near the upper edge; the 0° of the Washington meridian coincides with 77°

west of London. In 1804 a line through the center of the White House was run out and marked for the zero of the Washington meridian. This line is 76°56'25" west of London. It will be seen from these statements that the location of this boundary was somewhat uncertain, but the position was recognized as the 10th degree west of Greenwich in acts of Sept. 9, 1850, and June 5, 1858.

⁴¹ 9 Stat. L. 125. For reference to efforts made by the United States to acquire Texas between 1829 and 1835 by purchase or otherwise, see T. M. Marshall (1914, v. 2, p. 86-112).

part on a secret treaty between President Santa Anna of Mexico and officers of the Texas army at the end of the war between Mexico and Texas in 1836.

FIRST MEXICAN CESSION

In 1848 the treaty of Guadalupe-Hidalgo added to the country the area of California, Nevada, Utah, and parts of Colorado, Arizona, and New Mexico. (See fig. 3.) This treaty was concluded February 2, 1848, and proclaimed July 4, 1848. The clauses in it defining U.S. acquisition of territory are as follows (Malloy, 1910, v. 1, p. 1109):

ARTICLE V. The boundary line between the two Republics shall commence in the Gulf of Mexico, three leagues from land, opposite the mouth of the Rio Grande, otherwise called the Rio Bravo del Norte, or opposite the mouth of its deepest branch, if it should have more than one branch emptying directly into the sea: from thence up the middle of that river, following the deepest channel where it has more than one, to the point where it strikes the southern boundary of New Mexico; thence, westwardly, along the whole southern boundary of New Mexico (which runs north of the town called Paso) to its western termination; thence, northward, along the western line of New Mexico, until it intersects the first branch of the river Gila; or if it should not intersect any branch of that river, then to the point on the said line nearest to such branch, and thence in a direct line to the same; thence down the middle of the said branch and of the said river, until it empties into the Rio Colorado; thence across the Rio Colorado, following the division line between Upper and Lower California, to the Pacific Ocean.

The southern and western limits of New Mexico, mentioned in this article, are those laid down in the map entitled "Map of the United Mexican States, as organized and defined by various acts of the Congress of said republic, and constructed according to the best authorities. Revised edition. Published at New York in 1847, by J. Distumell;" of which map a copy is added to this treaty, bearing the signatures and seals of the undersigned Plenipotentiaries. And in order to preclude all difficulty in tracing upon the ground the limit separating Upper from Lower California, it is agreed that the said limit shall consist of a straight line drawn from the middle of the Rio Gila, where it unites with the Colorado, to a point on the coast of the Pacific Ocean, distant one marine league due south of the southernmost point of the port of San Diego, according to the plan of said port made in the year 1782 by Don Juan Pantoja, second sailing-master of the Spanish fleet, and published at Madrid in the year 1802, in the atlas to the voyage of the schooners *Sutil* and *Mexicana*; of which plan a copy is herewith added, signed, and sealed by the respective plenipotentiaries.

For this vast territory the United States agreed to pay \$15 million, of which \$3 million was to be paid when the treaty was ratified and the remainder in annual installments of \$3 million each, with interest at 6 percent. Besides this, the United States assumed the

liability for certain claims against Mexico, not to exceed a total of \$3,250,000.

Much difficulty followed in the interpretation of this treaty. A joint commission of the two Governments was formed, consisting of a commissioner and a chief surveyor from each. They were instructed that any decision upon the interpretation of the treaty must be agreed to unanimously.

Under the direction of the commissioners the initial point of the boundary between Upper and Lower California was established on the Pacific coast and marked by a substantial monument. A similar determination was made at the eastern extremity of this line, at the junction of the Gila and Colorado Rivers, where another monument was placed. Between these points the line was run and marked with five intermediate monuments.⁴²

Monument 258 is the final marker on the west. It is about 200 yards from the shoreline of the Pacific and is a 14-foot white marble shaft enclosed by a 7-foot iron picket fence. Its geodetic position is lat 32°32' 03.82" N., long 117°07'18.84" W., 1927 N.A.D.

The most difficult question that came before the commission for decision concerned the location and extent of the south boundary of New Mexico. Here, unfortunately, the Distumell map left room for broad differences of opinion. The town called Paso (now named Juarez) was located on the map more than half a degree too far north and nearly 2° too far east. In the absence of the chief surveyor for the United States, the three other members of the commission agreed to accept the position of the south boundary of New Mexico as shown by the projection lines on the map (lat 32°22' N.); to run a line in that latitude 3° west from the Rio Grande and thence north until a branch of the Gila River was intersected. In accordance with this decision a durable monument was erected on the bank of the Rio Grande, in lat 32°22' N., and the running of the line westward was begun. (See fig. 47.) After 1½° had been run, the chief surveyor for the United States arrived, learned what had been done, and made a vigorous protest against this interpretation of the map. This protest caused the sudden stoppage of the work of running the line and the repudiation of the agreement by the U.S. Government. The United States claimed that the boundary should be located with reference to the town of Paso—the only definite point for it named in the treaty. Under this claim, according to later observations, the south

⁴² For reference to a mark established in 1773 for the separation of Upper and Lower California and for a description of the various lines proposed between 1845 and 1848 for the boundary between the United States and Mexico west of the Colorado River, see Hendry (1926). The mark of 1773 was at a point about 29 miles east of south of the Pacific terminus of the present boundary between the United States and Mexico. (Garber, 1922, p. 12, this book contains a bibliography of more than 200 titles relating to the two Mexican cessions.)

boundary of New Mexico would be placed at about lat 31°52' N., and it would extend west to long 109°30' W. Negotiations followed, but no agreement had been reached before 1853, when the Gadsden Purchase made further discussion unnecessary.

GADSDEN PURCHASE

On December 30, 1853, a second purchase was made from Mexico consisting of a strip of land lying south of the Gila River in New Mexico and Arizona, the consideration being \$10 million in gold. This is known as the Gadsden Purchase, from the name of the U.S. commissioner, James Gadsden.⁴² The boundaries (see figs. 3, 47) as established are as follows (Malloy, 1910, v. 1, p. 1121):

ARTICLE I. The Mexican Republic agrees to designate the following as her true limits with the United States for the future: Retaining the same dividing line between the two Californias as already defined and established, according to the fifth article of the treaty of Guadalupe Hidalgo, the limits between the two republics shall be as follows: Beginning in the Gulf of Mexico, three leagues from land, opposite the mouth of the Rio Grande, as provided in the fifth article of the treaty of Guadalupe Hidalgo; thence, as defined in the said article, up the middle of that river to the point where the parallel of 31°47' north latitude crosses the same; thence due west one hundred miles; thence south to the parallel of 31°20' north latitude; thence along the said parallel of 31°20' to the 111th meridian of longitude west of Greenwich; thence in a straight line to a point on the Colorado River twenty English miles below the junction of the Gila and Colorado Rivers; thence up the middle of the said river Colorado until it intersects the present line between the United States and Mexico.

In the year following, a commission was appointed for surveying and marking this line, under the U.S. commissioner, Maj. W. H. Emory. The line was run and marked in the year 1855, and the report was transmitted in the following year (Emory, 1857a).

As settlement increased in the territory which this line traverses, it became evident that the line was insufficiently marked. Because some of the monuments had disappeared and because there were many large areas in which no monuments had ever been placed, the necessity of rerunning and marking the line became apparent. For this purpose a commission was created in 1891, under which the line was recovered from the original monuments, as far as possible, and between these monuments was rerun and fully and durably marked. The report of this commission, including maps, profiles, and illustrations of the monuments, was published in 1898. (See fig. 1; U.S. Cong. 1898a.)

ALASKA PURCHASE

Alaska was purchased from Russia, in accordance with a convention signed March 30, 1867 (Farrar, 1922),

and proclaimed June 20, 1867, and was made a Territory by act of August 24, 1912. (37 Stat. L., pt. 1, p. 512.)

The boundaries of Alaska are described in the accompanying extracts from the convention of 1825 between Russia and Great Britain, as quoted in Article I of the convention of 1867 (see figs. 6, 7, 9; Malloy, 1910, v. 2, p. 1521):

"Commencing from the southernmost point of the island called Prince of Wales Island, which point lies in the parallel of 54 degrees 40 minutes north latitude, and between the 131st and 133d degree of west longitude (meridian of Greenwich) the said line shall ascend to the north along the channel called Portland channel, as far as the point of the continent where it strikes the 56th degree of north latitude; from this last-mentioned point, the line of demarcation shall follow the summit of the mountains situated parallel to the coast as far as the point of intersection of the 141st degree of west longitude (of the same meridian); and finally, from the said point of intersection, the said meridian line of the 141st degree, in its prolongation as far as the Frozen ocean.

"IV. With reference to the line of demarcation laid down in the preceding article, it is understood:

"1st. That the island called Prince of Wales Island shall belong wholly to Russia;" (now, by this session, to the United States).

"2d. That whenever the summit of the mountains which extend in a direction parallel to the coast from the 56th degree of north latitude to the point of intersection of the 141st degree of west longitude shall prove to be at the distance of more than ten marine leagues from the ocean, the limit between the British possessions and the line of coast which is to belong to Russia as above mentioned (that is to say, the limit to the possessions ceded by this convention) shall be formed by a line parallel to the winding of the coast, and which shall never exceed the distance of ten marine leagues therefrom."

The following paragraph is in the convention of 1867 only (Malloy, 1913, v. 2, p. 1522):

The western limit within which the territories and dominion conveyed, are contained, passes through a point in Behring's straits on the parallel of sixty-five degrees thirty minutes north latitude, at its intersection by the meridian which passes midway between the islands of Krusenstern, or Ignalok, and the island of Raimonoff, or Noenabook, and proceeds due north, without limitation, into the same Frozen ocean. The same western limit, beginning at the same initial point, proceeds thence in a course nearly southwest, through Behring's straits and Behring's sea, so as to pass midway between the north-west point of the island of St. Lawrence and the southeast point of Cape Choukotki, to the meridian of one hundred and seventy-two west longitude; thence, from the intersection of that meridian, in a southwesterly direction, so as to pass midway between the island of Attou and the Copper island of the Kormandorski couplet or group in the North Pacific ocean, to the meridian of one hundred and ninety-three degrees west longitude [167° east longitude] so as to include in the territory conveyed the whole of the Aleutian Islands east of that meridian.

The consideration paid for Alaska was \$7,200,000 in gold.

⁴² For references to the events which led to this purchase and a brief discussion of the boundary questions, see Bancroft (1899, v. 17, p. 491-518, 632).



FIGURE 6.—Map showing acquisitions of territory since 1853.

There is no possibility of misinterpreting the language of the convention as to the part of the boundary running along the 141st meridian, but when the wealth of the area was recognized the claims of the United States on the location of the part of the boundary from Mount St. Elias southeastward to the mouth of Portland Canal were questioned by Canadian authorities.

The coast of this part of Alaska is extremely broken, containing many fiords extending far inland, and no continuous range of mountains parallels the coast. It was for many years tacitly admitted by both sides that the second alternative of the treaty, that the boundary should be a line 10 marine leagues distant from the coast and following its windings, should be the one finally adopted when the question of marking the boundary arose. This position has been consistently held by the United States from the time of the acquisition of the territory to the present day. Many maps prepared before the dispute arose, United States and Canadian, agreed on it. Many acts of sovereignty were performed by the United States within this territory, and no question of their validity was raised by the Canadian authorities. The discovery of gold in the basin of the Yukon in Canada, however, and the fact

that the only feasible means of access to this region lay through U.S. territory made it extremely desirable for Canada to possess a port or ports on this coast as the starting points of routes to the Yukon mines, and it was only when this necessity appeared that a definite interpretation of the treaty was required.

The claim made by the British Government on behalf of Canada before a joint commission on the boundary in August 1898 was that this part of the boundary, instead of passing up Portland Canal, should pass up Pearce Canal, connecting with Portland Canal, up which it should follow to the summit of the mountains nearest to the coast, and then should follow them, regardless of the fact that they do not form a continuous range, crossing all the inlets of the sea up to Mount St. Elias. This claim was refused by the U.S. commissioners. A proposition by the British commis-



FIGURE 7.—Arctic Ocean terminous of the boundary between Alaska and Canada. The photograph was taken in 1912 by the International Boundary Commission.

tions of which have been established. A report on this boundary is given in the annual report of the International Boundary Commission, United States and Canada, published in 1952. The line is marked by concrete monuments along the shores of Portland Canal, by 5-foot aluminum-bronze monuments in the valleys of streams crossed, by conical monuments on easily accessible summits and by brass bolts on peaks less easily ascended. Inaccessible peaks on the line were located by triangulation.

In accordance with the convention of April 21, 1906, commissioners were appointed under whose direction the 141st meridian has been established and inter-visible marks placed along the line from the Arctic Ocean to Mount St. Elias, a distance of about 647 miles, the fieldwork having been completed in 1913. (See fig. 7). A vista 20 feet wide was cut through the wooded areas. The final report of the commissioners, dated December 15, 1918, was published in 1919 and is accompanied by an atlas containing 38 maps. The report is entitled "Joint report upon the survey and demarcation of the international boundary between the United States and Canada along the one hundred and forty-first meridian from the Arctic Ocean to Mount St. Elias." This report contains copies of treaties and historical data relating to the location of the boundary. (Foster, 1899, 1904; Riggs, 1909.) A report of the Boundary Commission (Special Rept. 4), published in 1966, gives the 1927 N.A.D. adjusted values of markers on this line, with ties to primary triangulation, and information on the maintenance of the boundary line.

The 141st meridian boundary was retraced and re-marked in 1973 and 1974 by the International Boundary Commission. A total of 233 stations were recovered and 29 lost stations were reestablished. The new marks were bronze disks set in bedrocks or large boulders. Recovery of the original stations was relatively easy. The work was necessary because of the deterioration of some marks and the increased activity of mineral and oil exploration. Some distance checks along the line were made with electronic distance-measuring equipment. A report on the work by two of the U.S. engineers who worked on the project, F. X. Popper and C. R. Moore, was presented at the 1975 annual meeting of the American Congress on Surveying and Mapping (Popper and Moore, 1975).

The only part of the boundary not defined at present is that through Dixon Entrance between Cape Muzon and the entrance to Tongass Passage. Agreement between the United States and Canada for this section has not been finalized.

By Article XXVI of the treaty between the United States and Great Britain of May 8, 1871, the navigation of the Yukon, Porcupine, and Stikine Rivers, Alaska,

was declared free for the purpose of commerce to the citizens of both nations.

It is an interesting fact that the area of Alaska and the Aleutian Islands, if superimposed on the continuous United States in true north-south position so as to touch the Canadian boundary a short distance west of the Lake of the Woods, would reach the Atlantic Ocean near the line between Georgia and South Carolina, cross the Mexican boundary in southwestern New Mexico, and touch the Pacific Ocean in southern California. (See fig. 9.)

HAWAIIAN ISLANDS

The Hawaiian Government in 1851 seriously considered the transfer of sovereignty of the Hawaiian Islands to the United States, but the plan was for the time being laid aside. Annexation to the United States was authorized by the Hawaiian Constitution of 1852, "if indispensable to free it from insults and oppression of any foreign powers." Annexation was again under consideration in 1854, and a draft of a treaty was prepared whereby the islands would be ceded to the United States, but the sudden illness and death on December 15, 1854, of King Kamehameha III, who had favored the treaty, put an end to the negotiations.⁴⁴

The Republic of Hawaii was formally annexed to the United States by the voluntary action of its citizens and a joint resolution of Congress approved July 7, 1898. The transfer of sovereignty took place August 12, 1898. The area was constituted a Territory by act of April 30, 1900, effective June 14, 1900.⁴⁵

The Hawaiian Islands and adjacent islets are scattered over a considerable area which extends nearly 2,000 miles in a general northwest-southeast direction and has a width of about 150 miles. (See fig. 6.) The eight inhabited islands, which lie between 19°00' and 22°15' N., long 155°00' and 162°00' W., have a total area of 6,412 square miles and a total coast line of 957 miles, as follows:

Hawaii: greatest length, 89 miles; greatest width, 72 miles; area, 4,021 square miles; highest point, Mauna Kea, 13,796 feet above sea level.

⁴⁴ This information is taken from an address presented by Prof. W. D. Alexander before the Hawaiian Historical Society on July 2, 1897 (Hawaiian Hist. Soc. Papers, No. 9).

⁴⁵ 31 Stat. L. 141. For a summary of legislative acts relating to this transfer, see Moore (1906, p. 475-520).

Maui: about 48 miles long and 26 miles wide; area, 728 square miles; highest point, 10,023 feet above sea level.

Oahu: about 43 miles long and 30 miles wide; area, 602 square miles; highest point, 4,040 feet.

Kauai: nearly circular, about 26 miles in diameter; area, 553 square miles; highest point, 5,240 feet.

Molokai: about 38 miles long and 9 miles wide; area, 259 square miles; highest point, 4,970 feet.

Lanai: about 18 miles long and 12 miles wide; area, 141 square miles; highest point, 3,370 feet.

Niihau: about 18 miles long and 3 to 6 miles wide; area, 72 square miles; highest point, 1,281 feet.

Kahoolawe: about 11 miles long and 6 miles wide; area, 45 square miles; highest point, 1,477 feet.

More than 100 smaller islands are included in the group. Among the larger of these are:

Niihau or Bird Island: lat 23°06' N., long 161°58' W.; about three-quarters of a mile long and a quarter of a mile wide; area, 166 acres; highest point, 910 feet.

Gardner Island: lat 25°01' N., long 167°59' W.; an inaccessible rock 190 feet high and about 600 feet in diameter.

Laysan Island: lat 25°42' N., long 171°44' W., 1¼ miles long and 1 mile wide; area, 1.56 square miles; highest point, 35 feet.

Lisiansky Island: lat 26°00' N., long 173°50' W., about 1 mile long and half a mile wide; area, 378 acres; highest point, 20 feet.

Kure Island: lat 28°25' N., long 178°25' W.; an atoll about 15 miles in circumference; area, 211 acres; highest point, 20 feet.

Kaula: a barren, rocky, crescent-shaped island about 20 miles southwest of Niihau; area, about one-sixth of a square mile; highest point, 550 feet; set aside by the Territorial Governor in December 1924 as a site for a lighthouse.⁴⁵

PALMYRA ISLAND⁴⁷

Palmyra Island, lat 5°52' N., long 162°05' W., is approximately 1,000 miles south of Honolulu. It was discovered in 1802 by Captain Sawley of the American ship *Palmyra*. It was annexed to Hawaii in 1862. When Hawaii became a State, Palmyra was excluded from its boundaries. An Executive order of October 10, 1961,

⁴⁵ For reference to other islands belonging to this group, see U.S. Coast and Geod. Survey (1923); Moore (1896, p. 555); U.S. Cong. (1892, 1896b). The source of information on areas and altitudes is "Research Report 15, Geographic Statistics for Hawaii" of the Dept. of Planning and Research, Hawaii.

⁴⁷ Information on unincorporated territories and possessions of the United States is summarized in "United States and Outlying Areas," *Geog. Rept. of the Geographer*, U.S. Dept. of State (1963a). The Office of Territorial Affairs, U.S. Department of the Interior, publishes a booklet entitled "Territorial Areas Administered by the United States." Some of the information on the islands under U.S. administration is used in the following pages.

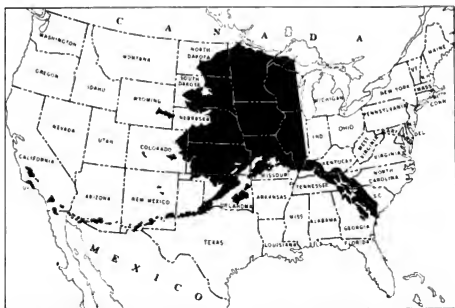


FIGURE 9.—Relative size of Alaska and the conterminous United States.

placed administration of Palmyra under the Secretary of the Interior (table 3).

Reef rock has been piled up on the rim of Palmyra Island to form an airplane landing strip. The island is densely covered with coconut trees and with the balsalike *persea grandis* that grow to heights of 100 feet. Highest land elevation is about 30 feet; area is 3.8 square miles. (Rock, 1916.)

ADDITIONS TO THE TERRITORY OF THE UNITED STATES

TABLE 3.—Outlying areas of the United States

Name	Area (sq mi)	Population (1970)	Status; administrative agency
Palmyra Island	4	0	Possession; Department of the Interior.
Guam	212	84,966	Unincorporated territory; Department of the Interior.
American Samoa	83	27,159	Do.
Wake Island	3	(*)150	Possession; Department of the Air Force.
Midway Islands	2	882	Possession; Navy Department.
Johnston Atoll	(*)	0	Do.
Kingman Reef	(*)	0	Do.
Canal Zone	647	44,198	Leased from Panama; governed by the Canal Zone Government; Governor appointed by the President.
Virgin Islands of the United States	133	62,468	Unincorporated territory; Department of the Interior.
Navassa	2	0	Possession; U.S. Coast Guard.
Quita Sueno Bank	(*)	0	Arrangement made with Colombia in 1928 to maintain the status quo.
Roncador Cay	(*)	0	Do.
Serrana Bank	(*)	0	Do.
Howland, Baker, and Jarvis Islands	3	0	Possessions; Department of the Interior.
Canton and Enderbury Islands	27	315	Claimed by the United States and Great Britain (see p. 41).

* Less than 0.5 square mile.
* 1974.

PUERTO RICO⁴⁸

Puerto Rico was ceded to the United States by Spain by the treaty of peace concluded December 10, 1898. (Malloy, 1910, v. 2, p. 1691.) Article 2 of that treaty is as follows:

Spain cedes to the United States the island of Puerto Rico and other islands now under Spanish sovereignty in the West Indies, and the island of Guam in the Mariana Islands or Ladrones.

Puerto Rico's area is 3,497 square miles, its extreme length is 109 miles, its width is 39 miles, and its greatest height is 4,390 feet. The largest of the other West Indian islands referred to is Vieques; others are Culebra, Mona, Muertos, and Desecho. The total area of the smaller islands is 86 square miles. These islands, including Puerto Rico, all lie in the area between lat 17°42' and 18°31' N., and long 65°20' and 67°55' W. Possession was taken by the United States October 18, 1898.

Congress ratified the constitution of Puerto Rico on July 3, 1952. It was established as a "commonwealth" at that time, and has most of the powers and responsibilities of a State of the Union. Major exceptions are that Puerto Rico's residents are not subject to Federal taxation and do not have voting representation in the U.S. Congress nor the right to vote for President and Vice President of the United States. Most of the activities of the Federal Government found in the States are also found in Puerto Rico. The Federal Government has in Puerto Rico the same authority that it has in a State of the Union. Puerto Ricans are liable for military service under the Selective Service Act. Immigration laws pertaining to the United States also apply to Puerto Rico. However, the Commonwealth regulates its own customs and collects its own import duties.

GUAM

Guam is an organized, unincorporated territory of the United States. It is located at the southernmost end

⁴⁸ For information on the insular possessions of the United States, see U.S. Cong. (1907, 1908, 1912, 1914).

of a chain of volcanic islands in the western Pacific Ocean known as the Mariana Islands. Its relations with the Federal Government are under the jurisdiction of the Department of the Interior.

The island of Guam lies about 6,000 miles southwest of San Francisco and 1,500 miles east of Manila. It is the largest and most populous of the Marianas, 30 miles long and varying in width from 4 to 8½ miles. Guam, whose inhabitants are citizens of the United States, has a population of approximately 100,000, of whom 22 percent are military personnel and their dependents.

The Government of Guam was established by an organic act of the U.S. Congress, which became law on August 1, 1950. It is administered by a Governor and a Lieutenant Governor who are elected by the people. Since 1972, the residents of Guam have elected a Non-Voting Delegate to the U.S. House of Representatives. Government headquarters are in Agaña, the capital city of the Territory of Guam.

AMERICAN SAMOA**

American Samoa is located about 2,200 miles southwest of Hawaii and about 1,600 miles northeast of New Zealand. It is composed of seven tropical islands, the land area of which is 83 square miles. The Government of American Samoa is administered by the U.S. Department of the Interior. Of the land, 96 percent is owned communally and is regulated as to occupancy and use by Samoan custom. The population is about 29,000 (1974), and the people are not U.S. citizens but are classed as U.S. nationals and have free access of entry to the United States. Samoans are among the last remaining true Polynesians, and they cling steadfastly to their Samoan culture and traditions. Trade winds and frequent rains make American Samoa's climate pleasant. American Samoa normally receives about 200 inches of rain annually, most of it falling from December to March. The temperature range is between 70° and 90° F, and the humidity is usually 80 percent. English is the official language, although the Samoan language is used more often and more extensively.

For several years the United States, Great Britain, and Germany exercised a joint protectorate over the

Samoa Islands (Thorpe, 1909, v. 6, p. 3675). For various reasons it was deemed best to bring this situation to an end. England withdrew, and the islands were divided between Germany and the United States, the latter taking all the islands of the group lying east of longitude 171° west of Greenwich. This adjustment was reached by a convention between the United States, Germany, and Great Britain, concluded December 2, 1899, and proclaimed February 16, 1900.

Western Samoa was taken from Germany during the first World War by New Zealand, who governed it under a mandate from the League of Nations. After World War II, Western Samoa became a trust territory of the United Nations, administered by New Zealand. Since 1962 it has been a self-governing nation.

The natives of Samoa had no part in this convention, but certain chiefs of islands in 1900 and 1904 made cessions to the United States which were accepted by the President but not ratified by the Senate. A bill to remedy this apparent oversight was introduced in the Senate April 5, 1926, but did not become a law until February 20, 1929.¹⁰

Tutuila Island, the largest of the Samoan group belonging to the United States, has a length of 20 miles and a breadth of about 6 miles. Its extreme height is 2,141 feet (fig. 10).

Aunuu Island, about a mile from the east end of Tutuila, has a length of 1 mile, a height of 275 feet, and an area of half a square mile.

About 60 miles to the east are the three Manua Islands, the largest of which is Tau, 6½ miles in length, 3,056 feet in extreme height. Olosega Island is 2½ miles in length and 2,095 feet in height. Ofu Island is about 3 miles long, and its highest point is 1,587 feet. Its area is 3 square miles.

Rose Island is the name given an atoll about 3 miles in diameter, partly under water at high tide, 80 miles southeast of any of the other islands of the Samoan group. It was designated as a Wild Life Refuge by the National Wild Life Association in 1974. Public use of the atoll is restricted to scientists and educators on a permit basis. At least 16 species of birds live on the atoll and it is an important nesting area for the green sea turtle which is a rare reptile. Sand Islet, the smaller of the two islets of the atoll, is about an acre in extent and its highest part is 5 feet above high tide. Rose Islet has an area of about 8 acres, and its highest part is 11 feet above high water. It is covered in part with a dense grove of Pisonia trees but is without fresh water and is uninhabited. This islet has the distinction of being the southernmost land under the control of the United States. Its geographic position is lat 14°32' S., long 168°11' W. (See fig. 10).

** For reference to legislative action leading to the acquisition of the Samoa group, see Moore (1906, p. 536-554) and Malloy (1910, v. 2, p. 1595).

¹⁰ U.S. 70th Cong., 2d sess., Pub. Res. 89. See Cong. Record, Apr. 10, 1926, p. 1952-1954, for historical description of this accession.



FIGURE 10.—Northernmost and southernmost points in U.S. Territory.

Above, Point Barrow, the northernmost point in Alaska (photograph courtesy of John L. Mohr).

Below, Masefau Bay on Tutuila Island, American Samoa in the Pacific Ocean at lat 14°16' S. (photograph courtesy of Rodney Williams); Rose Island, an atoll in the Samoan group extends to lat 14°32' S.



American Samoa lies between lat 14° and 15° S. and long 168° and 171° W.

The joint resolution of March 4, 1925, placed Swains Island (p. 41) under the administration control of American Samoa.

WAKE, MIDWAY, AND JOHNSTON ISLANDS

Wake Island is an atoll about 2,000 miles west of Honolulu. Its position is lat 19°17' N., long 166°35' E. Although it is usually referred to as a single island, there are three islands, separated by narrow and shallow channels. The largest is Wake Island, whose area is about 2 square miles; its highest point is 21 feet above sea level. The smaller islands are Wilkes and Peale. Formal possession was taken on behalf of the United States by the Commander of the U.S.S. Bennington on January 17, 1899. (Moore, 1906, p. 555.) It was captured by the Japanese in the early part of World War II. U.S. personnel at the time consisted of a detachment of Marines and a construction crew.

Wake Island has no indigenous population. It is administered by the Department of the Air Force.

The Midway Islands, two small coral islands in lat 28°13' N., long 177°22' W., about 1,200 miles a little north of west from Honolulu, were discovered by Captain Brooks, an American shipmaster on an Hawaiian vessel, in 1859. Possession was taken on behalf of the United States on September 30, 1867, by Capt. William Reynolds of the U.S.S. *Lackawanna*, who stated that the larger island was "the first island ever added to the domain of the United States beyond our own [American] shores."⁵¹ The larger island is 1¾ miles long and rises 43 feet above sea level. This island has an airfield, a cable station, and a lighthouse. The total area of the two islands is about 2 square miles. The Midway Islands have been considered part of the Hawaiian Islands, but they are not included in the State of Hawaii.

The Midway Islands are chiefly identified with the Battle of Midway, one of the decisive naval engagements of World War II.

Johnston Atoll, lat 16°45' N., long 169°30' W., is a grass-covered lagoon island half a mile in length; its area is 185 acres. Nearby Sand Island, 134 acres, is uninhabited. These two and several other islands compose Johnston Atoll.

Midway and Johnston are under the administration of the Navy Department, as is Kingman Reef, near Palmyra Island.

CANAL ZONE

In order to insure the construction of a ship canal across the Isthmus of Panama, the Republic of Panama granted rights to the United States "in perpetuity" for its use, occupation, and control, a strip of land 10 miles in width. This conveyance was made by a convention concluded November 18, 1903 (Malloy, 1910, v. 2, p. 1349). The area (see fig. 11) is described in Article II

as

a zone of land and land under water for the construction, maintenance, operation, sanitation, and protection of said canal of the width of ten miles extending to the distance of five miles on each side of the center line of the route of the canal to be constructed; the said zone beginning in the Caribbean Sea three marine miles from mean low water mark and extending to and across the Isthmus of Panama into the Pacific Ocean to a distance of three marine miles from mean low water mark with the proviso that the cities of Panama and Colon and the harbors adjacent to said cities, which are included within the boundaries of the zone above described, shall not be included within this grant. The Republic of Panama further grants to the United States in perpetuity the use, occupation, and control of any other lands and waters outside of the zone above described which may be necessary and convenient for the construction, maintenance, operation, sanitation, and protection of the said canal or of any auxiliary canals or other works necessary and convenient for the construction, maintenance, operation, sanitation, and protection of the said enterprise.

The Republic of Panama further grants in like manner to the United States in perpetuity all islands within the limits of the zone above described and in addition thereto the group of small islands in the Bay of Panama, named Perico, Naos, Culebra, and Flamenco.

Article III of the convention provides: "The Republic of Panama grants to the United States all the rights, power, and authority within the zone . . . which the United States would possess and exercise if it were sovereign of the Territory within which said lands and waters are located to the entire exclusion of the exercise by the Republic of Panama of any such sovereign rights, powers, or authority." The United States recognizes that titular sovereignty over the Canal Zone remains in the Government of Panama.

By Article XIV of the convention the United States agreed to pay to the Republic of Panama \$10 million and to make annual payments of \$250,000 beginning 9 years after the convention was ratified. By the treaty of 1955, annual payments were increased to 1,930,000 Balboas. The devaluation of the dollar in 1972 resulted in an increase in the dollar value of the payments to \$2,095,401. The 1973 devaluation brought the annual payments to \$2,328,200 as of February 1974 (U.S. Congress, 1973).

Possession was taken of this tract on June 15, 1904; the boundaries of the 10-mile strip have been surveyed

⁵¹ U.S. 40th Cong., 1869, 3d sess., S. Rept. 194, p. 12. This report contains an extended description of the islands.

and have been marked at average intervals of half a mile by iron posts bearing brass caps.

Under the clause in Article II that permitted the United States to take control of "other lands and waters outside of the zone" the United States from time to time has taken possession of areas outside of the 10-mile belt, which are officially designated "auxiliary areas." The largest of these is a part of Gatun Lake, with its islands and its shores, up to an altitude of 100 feet above mean sea level.

A second convention was concluded September 2, 1914, which recognized the transfer of the Gatun Lake area to the United States and by Article III ceded to the Republic of Panama an area of about 6½ square miles adjoining the city of Panama on the northeast. (U.S. Cong., 1923, v. 3, p. 2771-2773.)

This convention also defined the Canal Zone boundary around the city of Colon and the harbors of Colon and of Panama. The treaty of 1955 further changed the boundaries around the city of Colon by returning certain small areas to Panama and provided for the return of Patilla Point, near the city of Panama, to Panamanian sovereignty.

By Executive order of June 5, 1924, the United States took possession of an area known as the Alhajuela Basin, which comprises 22 square miles of the upper Chagres River basin.

The area of the Canal Zone, including Gatun Lake to the 100-foot contour outside the original 10-mile zone, is 647 square miles—275 square miles of water and 372 square miles of land. (Source, Canal Zone Government 1974).

In order "to remove all misunderstandings" regarding the acquisition of the Canal Zone by the United States from the Republic of Panama, which had until November 3, 1903, been under the jurisdiction of the Republic of Colombia, the United States by treaty signed April 6, 1914, ratified in 1921, and proclaimed March 30, 1922, agreed to pay Colombia \$25 million (42 Stat. L. 2123).

VIRGIN ISLANDS OF THE UNITED STATES

By a convention concluded August 4, 1916 (39 Stat. L. 1706), Denmark ceded to the United States all territory, dominion, and sovereignty possessed, asserted, or claimed by Denmark in the West Indies, including the islands of Saint Thomas, Saint John, and Saint Croix, together with the adjacent islands and rocks.

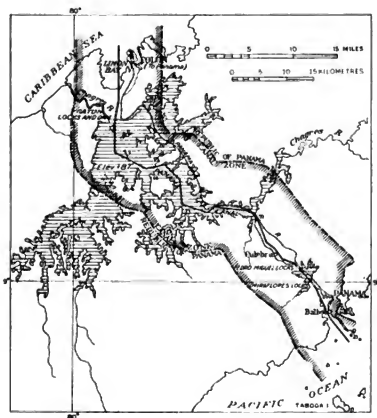


FIGURE 11.—Canal Zone.

The purchase price was \$25 million, or nearly \$300 an acre (U.S. Cong., 1917). By act of Congress, approved March 3, 1917, this cession was to become effective after the President had announced that the amount agreed upon had been paid to Denmark. The proclamation was dated March 31, 1917. (39 Stat. L. 1132; 40 Stat. L., pt. 2, p. 1649.)

In several acts of Congress the former Danish West Indies are referred to as the Virgin Islands, but when possession was taken of them March 31, 1917, the name given by proclamation was "Virgin Islands of the United States of America," to distinguish them from the Virgin Islands belonging to Great Britain. Since June 1917 the U.S. Navy Department has used the abbreviated form "Virgin Islands of the United States," and that name has been adopted by the Post Office and other departments.

St. Croix, the largest island included in this cession, is 23 miles long and 6 miles in extreme width; the highest point is 1,165 feet above sea level; the area is 81.93 square miles.

St. Thomas, 12 miles long, 1 to 3 miles wide; highest point, Crown Mountain, 1,550 feet; area, 27.12 square miles.

St. John, 9 miles long, 5 miles wide; highest point, 1,277 feet; area, 19.2 square miles.

Besides these three, there are nearly a hundred small islands, none as great as a square mile in extent, but having a combined area of about 5 square miles, which makes the total area of the cession 133 square miles.

GUANO ISLANDS

An act of Congress approved August 18, 1856, contains the following provisions:

SECTION 5570. Whenever any citizen of the United States discovers a deposit of guano on any island, rock, or key, not within the lawful jurisdiction of any other government, and not occupied by the citizens of any other government, and takes peaceable possession thereof, and occupies the same, such island, rock, or key may, at the discretion of the President, be considered as appertaining to the United States.

SECTION 5578. Nothing in this title contained shall be construed as obliging the United States to retain possession of the islands, rocks, or keys, after the guano shall have been removed from the same.

Before 1880 bonds were filed for about 70 islands under this act,²² but erroneous names and geographic positions were given for many of them; for some single islands several names and positions had been given. Some of the most important areas listed as guano islands are as follows:

Navassa Island, lat 18°24' N., long 75°01' W.; of volcanic origin; about 2 miles long and 1 mile wide; rises from 100 to 250 feet above the sea. A lighthouse, which operates automatically, is at the latitude and longitude given.

Quita Sueno Bank, lat 14°27.8' N., long 81°07' W., extends for about 20 miles north and south and has patches of dry land at intervals. It was declared by presidential proclamation of February 25, 1919, to be under the exclusive jurisdiction of the United States, and "the north or other suitable portion" was reserved for a lighthouse. The lighthouse, which works automatically, is at the latitude and longitude given.

Roncador Cay, lat 13°34.4' N., long 80°05.2' W., rises about 12 feet above the water. It is about a quarter of a mile long and is at the north end of a series of small cays. By presidential proclamation of June 5, 1919, it was declared to be under the exclusive jurisdiction of the United States and was reserved as a site for a lighthouse. The lighthouse (position above) works automatically.

Serrana Bank, lat 14°17' N., long 80°24' W., comprises three low islands, the largest of which, the southwest cay, is about half a mile long and has an extreme height of about 30 feet. This cay was declared by presidential proclamation of February 25, 1919, to be under the exclusive jurisdiction of the United States and was reserved for a lighthouse, which is in the position above given.

The Colombian Government, prior to 1928, disputed the claims of the United States to Serrana and Quita Sueno Banks and the Roncador Cay, but an agreement dated April 10, 1928, between the Secretary of State and the Colombian minister in Washington, maintained the status quo, the United States using the islands for maintenance of aids to navigation and Colombia having fishing rights in the adjacent waters. Sovereignty of these islands is a matter under discussion with Columbia at present (1975), and a final decision awaits action by the U.S. Senate.

²² Lists of these islands appear in a circular dated Feb. 12, 1899, in Moore (1908, v. 1, p. 556-560), in Magoon (1900, p. 14-17), and on General Land Office maps of the United States. Brief descriptions of the Pacific islands are given in Brigham (1900) and U.S. Hydrographic Office (1871, 1879, 1882, and 1916). Stewart's Handbook of the Pacific Islands (Allen, 1920), besides excellent descriptions of all the principal islands, contains a bibliography. For references to sovereignty and descriptions of other Pacific islands, see Statesmen's Year Book (1929), indexed under heading "Pacific Islands". The islands in the West Indies are described in reports of U.S. Hydrographic Office (1949, 1951, and 1952).

A treaty with Honduras, ratified September 1, 1972 (23UST2630; TIAS7453), recognized Honduran sovereignty over the Swan Islands. The United States had claimed sovereignty over these islands since 1863. The approximate position of these islands is lat 17°25' N., long 83°55' W.

Swains Island, also called Gente Hermosa and Quiros, lat 11°03' S., long 171°05' W., is about 4 miles in circumference and 10 to 15 feet high; its area, including a central lagoon of one-third square mile, is 1½ square miles. It was discovered by Quiros in 1606 and named by him *La Peregrina*, but the position then given for it was so much in error as to lead an American whaling captain named Swain to assume the right of discovery upon landing there. It was examined in 1840 by the United States exploring expedition under Wilkes and renamed Swains Island. In 1856 and for many years thereafter it was occupied by an American family named Jennings, engaged in raising coconuts. An official communication regarding this island from the British Government, dated January 30, 1918, stated that it was understood "that the island in question is United States territory."

A joint resolution of Congress, approved March 4, 1925 (43 Stat. L. 1357), asserted sovereignty of the United States over this island and made it a part of American Samoa. (See p. 38.)

The ownership of some of the guano islands is uncertain. Several of them have been claimed by Great Britain, without formal protest by the United States, except that in the case of Christmas Island (lat 1°57' N., long 157°28' W.) the Secretary of State, in a letter dated April 30, 1888, said that the United States reserved all questions that might grow out of the occupation.

The United States took possession of Howland, Baker, and Jarvis Islands in the central part of the Pacific Ocean under the provisions of the Guano Act. Howland and Baker are about 2,000 miles southwest of Honolulu (lat 0°30' N., long 176°30' W.) and Jarvis is about 1,500 miles south of Honolulu (lat 0°24' S., long 160°00' W.). The islands are uninhabited. In 1936 by Executive Order they were placed under the control of the Secretary of the Interior. At his request the Coast Guard has been asked to visit the islands periodically and submit reports and photographs.

Canton and Enderbury Islands are claimed by both the United States and Great Britain. They are about 1,660 nautical miles southwest of Honolulu at lat 2°46' S. and long 171°43' W. Canton Island is used as a landing station by trans-Pacific airlines. Enderbury is uninhabited. The population of Canton Island includes both British and United States citizens. An exchange of notes in 1939 provided for the joint administration of the islands by both governments to continue until

1989, at which time it can be extended if both parties agree. Administration by the United States is under the Department of the Interior, which is represented by the senior Federal Aviation Agency employee at the air station.

There are some 25 islands in the Pacific over which the United States' claim to sovereignty is disputed by Great Britain or New Zealand. All except the four in the Ellice group (Funafui, Nukufetau, Nukunono, and Nukunono), Hull in the Phoenix group, and Fakaofu in the Union group, appear on the lists of guano islands. (For further discussion on guano islands, see Hackworth, 1940, p. 502.)

INTERESTS OF THE UNITED STATES BEYOND ITS BORDERS

ANTARCTICA

Interest of the United States in the Antarctic was stimulated in the early 19th century by Yankee sealers, who, about 1820, sighted and went ashore on a land they believed to be a continent. The existence of this continent was first proved during the years 1839-40 by an official Navy expedition under Lt. Charles Wilkes, USN (fig. 12).

In the last decade of the 19th century, purely maritime exploration was supplemented by expeditions that landed on the continent and sought to push inland. This phase of Antarctic activity reached its climax when Captain Amundsen of Norway reached the South Pole December 14, 1911, followed by Captain Scott of England a few weeks later.

Exploration by the United States in the south polar regions was revived by the Byrd expeditions in 1928-30 and 1933-35. From his base at Little America on the Ross Ice Shelf, Admiral Byrd made the first flight over the South Pole November 29, 1929, and large areas previously unknown were explored by aerial and ground reconnaissance (Byrd, 1930).

In 1935, another American, Lincoln Ellsworth, first crossed the continent by air.

Although the first two Byrd expeditions were primarily privately financed, some governmental assistance was received in the loan of equipment and personnel. In 1939 the Government created the U.S. Antarctic Service, supported by a congressional appropriation of \$340,000, approved June 30, 1939 (53

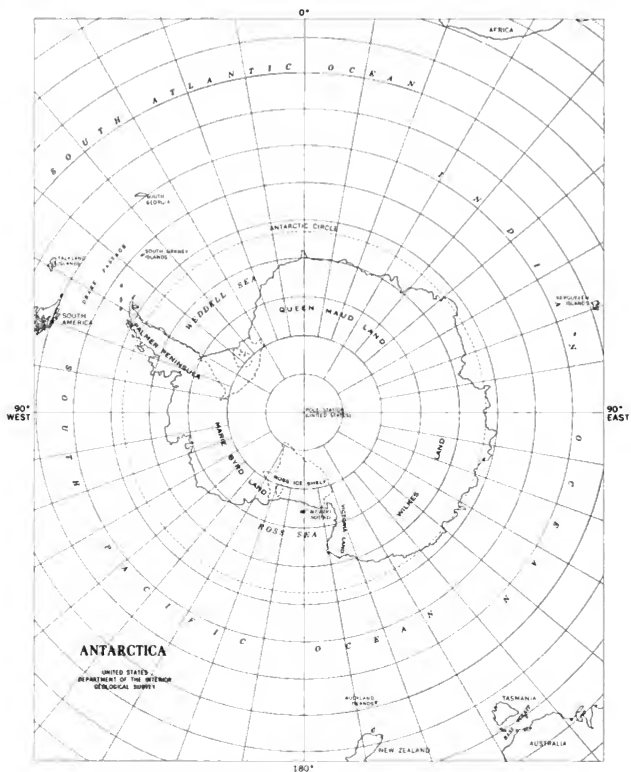


FIGURE 12.—Antarctica and its relation to Africa, South America, and Australia.

Stat. L. 980). Exploration the following season was from bases at Little America and on the west coast of the Palmer Peninsula.

After World War II, exploration was under the sponsorship of the Navy. Expeditions were sent out in 1946, 1947, and 1948. Large areas were photographed from the air, by both land-based and carrier-based aircraft.

The privately led Ronne Antarctic Research Expedition, partially Government supported, reoccupied the Palmer Peninsula base in 1947-48. Its work included mapping and exploring the west coast of the Weddell Sea to and along the Lassiter Ice Shelf.

U.S. Government operations in Antarctica were commenced in late 1954, and in late 1955 year-round bases were established in preparation for the International Geophysical Year (1957-58), a cooperative scientific effort of 11 nations.

After the International Geophysical year, the United States continued a multidisciplinary research program aimed at describing the continent and its surrounding seas. Today the program includes research in biology, biomedicine, geology, geophysics, upper-atmosphere physics, glaciology, meteorology, and oceanography. Four permanent stations, including one at the geographic South Pole, are occupied year round, and operation of two research ships is supported. The National Science Foundation funds and manages the program, including aircraft operations and logistics support provided by the U.S. Navy.

Although various nations have announced territorial claims to parts of the Antarctic continent, the United States has not done so. All nations with interests in the Antarctic territory signed a treaty December 1, 1959, declaring the area south of 60° south latitude an international preserve for scientific research. Thus scientific groups can move freely on the southern continent, disregarding boundaries.

National objectives, as stated by the President in 1970, are to maintain the Antarctic Treaty and ensure that the continent will continue to be used only for peaceful purposes, to foster cooperative scientific research for the solution of worldwide and regional problems, and to protect the Antarctic environment and ensure the equitable and wise use of living and nonliving resources.

MILITARY AND NAVAL BASE LEASES

The United States has leased land from foreign governments at strategic locations and established naval or air bases at those points.

The Navy has maintained a base at Guantanamo on the island of Cuba since shortly after the Spanish-American War. In February 1903, Cuba signed agreements to lease or sell coaling or naval stations to the United States in accord with a clause in the constitu-

tion of the Republic of Cuba (Malloy, 1910, v. 1, p. 358). The lease at Guantanamo Bay, on the south coast near Santiago, includes about 30 square miles of land and water. The land boundaries of the area are thus described in the agreement:

From a point on the south coast 4.37 nautical miles to the eastward of Windward Point Lighthouse, a line running north (true) a distance of 4.25 nautical miles:

From the northern extremity of this line, a line running west (true) a distance of 5.87 nautical miles:

From the western extremity of this last line, a line running south-west (true) 3.31 nautical miles.

From the southwestern extremity of this last line, a line running south (true) to the seacoast.

The outlines of this area are shown on U.S. Hydrographic Office Chart 1857.

An agreement between the United States and the United Kingdom effected by an exchange of notes dated December 30, 1966, made available to the United States the island of Diego Garcia and certain other islands in the Indian Ocean for defense purposes (TIAS 6196). A supplemental agreement (TIAS 7481) was signed October 24, 1972.

"TIAS" refers to "Treaties and Other International Acts Series" of the Department of State.

Construction of a naval communications and support facility was started in 1971. A limited supply station and airfield complex are nearing completion (1975). Appropriations provide for extension of the runway to 12,000 feet, additional storage area and powerplant capacity, and a pier. Diego Garcia is at lat 7°21' S., long 72°29' E. Its area is 6,700 acres.

A convention with Nicaragua for the termination of the lease to the United States of the Corn Islands was signed at Managua on July 14, 1970. (22UST663; TIAS 7120.) This convention also provided for termination of the agreement giving the United States the right to construct and maintain a canal between the Caribbean Sea and the Pacific Ocean by way of Lake Nicaragua. Ratifications were exchanged, and the convention entered into force on April 25, 1971.

Great Corn Island is in lat 12°10' N., long 83°05' W. Little Corn Island is about 7 miles to the northeast.

"UST" refers to "U.S. Treaties." Volumes have been published on a calendar-year basis beginning January 1, 1950.

TRUST TERRITORY OF THE PACIFIC ISLANDS

The Trust Territory of the Pacific Islands embraces three groups of islands in the western Pacific Ocean:

the Carolines, Marianas, and Marshalls. The 2,000 islands, of which approximately 100 are inhabited, cover less than 700 square miles of land in some 3 million square miles of ocean. These islands lie north of the equator stretching from 1° to 20° north latitude and from 130° to 172° east longitude. They vary in size from large islands, such as Babelthaup (153 square miles) in the Palaus and Ponape (129 square miles) in the eastern Carolines, to small atolls of less than 1 square mile of area (fig. 13).

Elevation above sea level is only a few feet on the low-lying coral atolls, but may reach 2,000 to 3,000 feet on islands of volcanic origin. This area was controlled by the Japanese under a mandate from the League of Nations before World War II, and since that time has been administered by the United States under a trusteeship agreement with the United Nations. Administration of the trust territory is under the Office of Territorial Affairs, Department of the Interior. A report is submitted annually by the United States to the Trusteeship Council of the United Nations. Under terms of the agreement, the United States has authority to establish military bases in the territory and to close all or any part of it for security reasons.

The inhabitants number about 107,000. They are classified as Micronesians, a term derived from the small size of the islands. The United States has accepted obligations to the United Nations for the political, economic, social, and educational advancement of the inhabitants of the trust territory.

A covenant to establish a commonwealth of the Northern Marianas Islands was approved by a plebiscite on June 17, 1975, by a favorable vote of more than 75 percent. The covenant will be implemented after the adoption of a constitution and its approval by Congress and the signing by the President. It will be effective on the termination of the trusteeship agreement with the United Nations for the Marianas District (see map, p. 45). Saipan, Tinian, Rota, and some smaller islands make up the Northern Marianas. The relation of the commonwealth to the United States would be similar to that of Puerto Rico.

TERRITORIAL WATERS AND THE CONTINENTAL SHELF

"Territorial waters" is the term applied to the part of the open sea over which a bordering nation may

claim jurisdiction for its own protection. It is generally conceded that jurisdiction over a belt of water along the coast 1 marine league²² (about 3½ statute miles) wide, measured from the low-water line, may be thus claimed, but the passage of neutral vessels engaged in peaceful pursuits through this area may not be forbidden.

The general rule regarding territorial waters has many exceptions and "now has no legal basis except the so-called 'common consent of nations.'" (*Encyclopedia Britannica*, 1910, v. 14, p. 698.)

Bays or arms of the sea, if in large part surrounded by the territory of a single nation, are usually considered entirely within the jurisdiction of that nation, even though the entrances are more than 2 leagues across.

The Hague tribunal in September 1910 decided in a special case submitted to it (regarding fisheries in the North Atlantic) that for bays contiguous to the territory of the Dominion of Canada

the 3 marine miles are to be measured from a straight line drawn across the body of water at the place where it ceases to have the configuration and characteristics of a bay. At all other places the 3 marine miles are to be measured following the sinuosities of the coast. (*Charles*, 1913, p. 69.)

This decision does not now apply to other localities but may be considered a precedent for future agreements (Hyde, 1922, p. 251-270). A joint commission acting under the treaty with Great Britain of June 5, 1854 (Malloy, 1910, v. 1, p. 668), agreed on proper locations for the mouths of 105 rivers emptying into the Atlantic between the 36th parallel and northern Labrador, and they defined these locations by straight lines between well-known points (Moore, 1898, v. 1, p. 473-494). Although the treaty was abrogated in 1866, the positions selected for the river mouths may still be regarded as well chosen.

When the 3-mile limit was adopted, it was thought to be the extreme range of cannon that could be used for coast defense. Today with aircraft as the principal weapon for coast defense, a distance of 3 miles no longer has any significance except as a time-honored accepted figure.

In section 1 of the treaty between the United States and Great Britain signed January 23, 1924, it was declared

that 3 marine miles extending from the coast-line outwards and measured from low-water mark constitute the proper limits of territorial waters.

That treaty gave the United States certain conditional rights of search or seizure over private vessels flying the British flag when within 1 hour's sailing distance from the coast of the United States or its possessions (43 Stat. L. 1761). Similar treaties have been effected

²² Texas claimed jurisdiction over the Gulf of Mexico for 3 leagues from land.

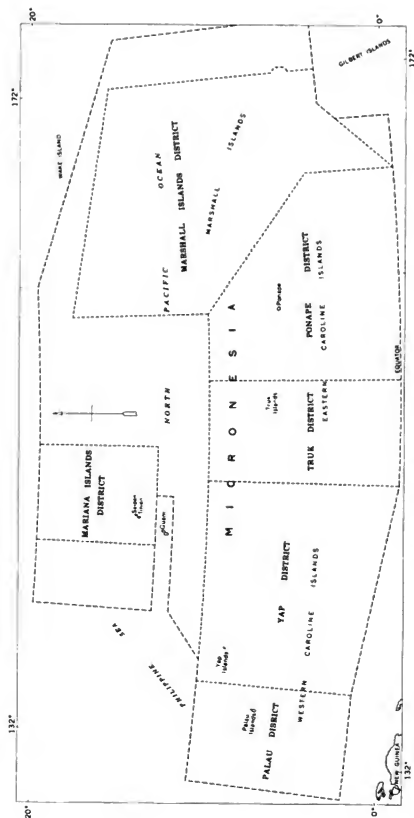


FIGURE 13.—The Trust Territories of the Pacific.

with several other nations. Section 581 of the tariff act of 1922 (42 Stat. L. 979) provides for the boarding of any vessel within 4 leagues of the coast of the United States in order to inspect, search, or seize the vessel, where a violation of U.S. law is evident.

The interest in the sovereignty of off-shore areas has greatly increased because of extensive fishing operations and shrimp and oyster cultivation and the presence of minerals below the submerged lands. Only in the last few years has it been practical to extract oil from beneath the ocean floor at any great distance from the shore.

By treaty between the United States and Mexico signed November 23, 1970, and entered into force April 18, 1972 (TIAS 7313), the international boundary between the two countries was extended 12 nautical miles into the Gulf of Mexico and the Pacific Ocean. See Texas, page 127, and California, page 153.

On September 28, 1945, the President issued two proclamations. One reserved and set aside the natural resources of the Continental Shelf under the high seas and placed these resources for administrative purposes, pending legislative action, under the jurisdiction and control of the Secretary of the Interior. The other proclamation provided for establishment by executive orders, on recommendation of the Secretary of State and the Secretary of the Interior, of fishing-conservation zones in areas of the high seas contiguous to the United States. The proclamation stated that the territorial limits of the United States are not extended, and the State Department (in its Bull. 327, Sept. 30, 1945) said, "Generally, submerged land which is contiguous to the continent and which is covered by no more than 100 fathoms (600 feet) of water is considered as the Continental Shelf."

In 1952, a Congressional committee reported on the study of the seaward boundaries of the United States. The report acknowledged that the subject was very complicated and thoroughly discussed the problems involved. It recommended that the study be continued at the following session of Congress, and that Congress should establish criteria for fixing the seaward boundaries of the inland waters, following which a commission should be delegated to fix the line on the ground by actual survey. Several formulas have been proposed for defining the seaward limit of inland waters (Boggs, 1940, chap. 10). However, the International Court of Justice, in its decision of the case of United

Kingdom v. Norway, held that there are no rules of a "technically precise character" by which the validity of a nation's seaward boundary under international law could be measured.

In 1953, Congress by Public Law 31, the Submerged Lands Act, gave to the States jurisdiction over the seabed and natural resources under territorial waters (67 Stat. L. 29). The law confirmed the seaward boundary of the original coastal States as being 3 geographical (nautical) miles distant from the coastline, "coastline" being defined as mean low tide or the seaward limit of inland waters. It also gave permission to any coastal State, admitted since the formation of the Union, to extend its boundaries to the 3-mile line. The law provided that in no event can the term "boundaries" be interpreted as extending more than 3 geographic miles into the Atlantic or the Pacific, or more than 3 leagues into the Gulf of Mexico.

Public Law 212, the Outer Continental Shelf Act, passed the same year (67 Stat. L. 462), asserted Federal jurisdiction over the seabed and its resources between the outer limits of the territorial waters and the outer limits of the Continental Shelf. This law provided that it shall be construed "in such a manner that the character as high seas of the waters above the outer Continental Shelf, and the right to navigation and fishing therein shall not be affected."

In 1954, the United States joined with other United Nations members in requesting the inclusion of the matters of the Continental Shelf and fishing conservation on the agenda of the General Assembly. The Assembly decided not to deal with these questions until after they had been studied by the International Law Commission.

An article on the Law of the Sea, as established in the 1958 Geneva Convention, states:

"... For the purposes of these articles, the term "Continental Shelf" is used as referring (a) to the seabed and subsoil of the submarine areas adjacent to the coast but outside the area of the territorial sea, to a depth of 200 meters or, beyond that limit, to where the depth of the superjacent waters admit of the exploitation of the natural resources of the said area; (b) to the seabed and subsoil of similar submarine areas adjacent to the coast of islands.

While the United States has never taken the position that its seaward boundaries extend more than 3 miles from its coastline, the provisions of the Submerged Lands Act gave the Gulf Coast States reason to believe that they might extend their seaward boundaries 3 leagues into the Gulf of Mexico. Legal proceedings were initiated in the Supreme Court to determine if any of the States had a valid claim to the submerged lands more than 3 geographic miles from the low-waterline of its coast. The cases against the five Gulf Coast States were consolidated, and a decision was handed down on May 31, 1960, in the case of United States v. Louisiana, Mississippi, Alabama, Texas (363

U.S. 1), and Florida (363 U.S. 121). The Texas boundary was confirmed as 3 marine leagues. Texas had been an independent nation for 10 years before its annexation to the United States. The congressional resolution admitting Texas as a State accepted the boundaries as described by the Republic of Texas, which stated that they were 3 leagues from land. The annexation resolution was the deciding factor in the ruling of the Court.

Florida was likewise granted a width of territorial sea extending 3 leagues into the Gulf of Mexico. The Court stated in its decision that Congress had approved Florida's 1868 constitution, submitted in compliance with the 1867 Reconstruction Acts, which specified a boundary at a distance of 3 leagues from the shoreline. This has no bearing on the Atlantic boundary, which is limited by the Submerged Lands Act to 3 geographical miles. See Louisiana, page 106.

The other three States were denied more than a 3-mile belt of territorial sea. In brief, the Court could find nothing in the enabling acts admitting them to the Union which would justify their claims to water areas lying off their shores.

The determination of the position of the seaward limit of inland waters (the seaward limit of the marginal sea depends on this) is a complicated matter. It involves the use of coastal charts, tidal data, and a complex set of criteria. Shalowitz (1962) gives a complete discussion of the legal and technical matters involved.

THE PUBLIC DOMAIN AND THE CHANGES MADE THEREIN ¹⁴

CESSIONS BY THE STATES

In 1776, when the Thirteen Colonies declared their independence of England, many of them possessed unoccupied territory, much of which was entirely detached and lay west of the Appalachian Mountains. Thus Georgia included the territory from its present eastern limits westward to the Mississippi River. North Carolina possessed a strip extending from lat 35° to 36°30' N., approximately, and westward to the Mississippi; this strip included the area of the present State of Tennessee. In like manner Virginia possessed what is now Kentucky, and a number of States, including Pennsylvania, New York, Massachusetts, Connecticut, and Virginia, laid claims to areas in what was afterward known as the territory northwest of the River Ohio, a region now contained mainly in the States of Ohio, Indiana, Illinois, Michigan, and Wisconsin. These

claims were to a greater or lesser extent conflicting. Authority over some areas was claimed by several States, and most of the boundary lines were very ill defined.

The ownership of these western lands by individual States was opposed by those States that did not share in their possession, mainly on the ground that the resources of the General Government, to which all contributed, should not be used for the protection and development of this region, the advantages of which would inure to the benefit of only a favored few.

Moved by these arguments, as well as by the conflicting character of the claims, which must inevitably lead to trouble among the States, Congress passed, on October 30, 1779, the following resolution:

Whereas the appropriation of the vacant lands by the several States during the continuance of the war will, in the opinion of Congress, be attended with great mischief: Therefore,

Resolved, That it be earnestly recommended to the State of Virginia to rescind their late act of assembly for opening their land office; and that it be recommended to the said State, and all other States similarly circumstanced, to forbear settling or issuing warrants for unappropriated lands, or granting the same during the continuance of the present war.

This resolution was transmitted to the different States. The first to respond to it by the transfer of territory to the General Government was New York, whose example was followed by the other States. These transfers were the origin of the public domain. The cessions were made on the dates below (Hibbard, 1924; Sherman, 1916-33, v. 3):

New York, March 1, 1781.

Virginia, March 1, 1784, finally confirmed by the legislature December 30, 1788. The deed of cession by Virginia gives no limits further than to specify that the lands transferred "include only those lying northward of the River Ohio."

Massachusetts, April 19, 1785.

Connecticut, September 13, 1786. The Connecticut act of cession reserved an area in the northeastern part of Ohio, known as the Western Reserve (Western Reserve Univ., 1923, p. 37-57). On May 30, 1800, Connecticut gave to the United States jurisdiction over this area, but without giving up its property rights in it.

South Carolina, August 9, 1787.

North Carolina, February 25, 1790.

Georgia, April 24, 1802.

¹⁴ For a discussion of these changes, see Paxson (1924, chap. 5, §). U.S. Cong. (1900) contains copies of organic acts for the Territories from 1787 to 1900 compiled from U.S. statutes. It contains a copy of the ordinance of 1787 and notes regarding it; also contains extracts from State papers relating to U.S. territory in general.

The following paragraph from the deed of cession by New York defines the limits of its grant to the General Government (Donaldson, 1884, p. 67):

Now, therefore, know ye, that we, the said James Duane, William Floyd, and Alexander McDougall, by virtue of the power and authority, and in the execution of the trust reposed in us, as aforesaid, have judged it expedient to limit and restrict, and we do, by these presents, for and in behalf of the said State of New York, limit and restrict the boundaries of the said State in the western parts thereof, with respect to the jurisdiction, as well as the right or pre-emption of soil, by the lines and in the form following, that is to say: A line from the northeast corner of the State of Pennsylvania, along the north bounds thereof to its northwest corner, continued due west until it shall be intersected by a meridian line, to be drawn from the forty-fifth degree of north latitude, through the most westerly bent or inclination of Lake Ontario; thence by the said meridian line to the forty-fifth degree of north latitude; and thence by the said forty-fifth degree of north latitude; but, if on experiment, the above-described meridian line shall not comprehend twenty miles due west from the most westerly bent or inclination of the river or strait of Niagara, then we do, by these presents, in the name of the people, and for and on behalf, of the State of New York, and by virtue of the authority aforesaid, limit and restrict the boundaries of the said State in the western parts thereof, with respect to jurisdiction, as well as the right of pre-emption of soil, by the lines and in the manner following, that is to say: a line from the northeast corner of the State of Pennsylvania, along the north bounds thereof, to its northwest corner, continued due west until it shall be intersected by a meridian line, to be drawn from the forty-fifth degree of north latitude, through a point twenty miles due west from the most westerly bent or inclination of the river or strait of Niagara; thence by the said meridian line to the forty-fifth degree of north latitude, and thence by the said forty-fifth degree of north latitude: * * *.

The following paragraph from the deed of cession by Massachusetts gives the limits of the area ceded (Donaldson, 1884, p. 71-72):

[We] do, by these presents assign, transfer, quitclaim, cede, and convey to the United States of America, for their benefit, Massachusetts inclusive, all right, title, and estate of and in, as well as the soil as the jurisdiction, which the said Commonwealth hath to the territory or tract of country within the limits of the Massachusetts charter situate and lying west of the following line, that is to say, a meridian line to be drawn from the forty-fifth degree of north latitude through the westerly bent or inclination of Lake Ontario, thence by the said meridian line to the most southerly side line of the territory contained in the Massachusetts charter; but if on experiment the above-described meridian line shall not comprehend twenty miles due west from the most westerly bent or inclination of the river or strait of Niagara, then we do by these presents, by virtue of the power and authority aforesaid, in the name and on behalf of the said Commonwealth of Massachusetts, transfer, quitclaim, cede, and convey to the United States of America, for their benefit, Massachusetts inclusive, all right, title, and estate of and in as well as the soil as the jurisdiction, which the said Commonwealth hath to the territory or tract of country within the limits of the Massachusetts charter, situate and lying west of the following line, that is to say, a meridian line to be drawn from the

forty-fifth degree of north latitude through a point twenty miles due west from the most westerly bent or inclination of the river or strait of Niagara; thence by the said meridian line to the most southerly side line of the territory contained in the Massachusetts charter aforesaid, * * *.

The following clause from the act of the Legislature of Connecticut, authorizing the cession, defines its limits (Donaldson, 1884, p. 73):

Be it enacted * * * That the delegates of this State, or any two of them, who shall be attending the Congress of the United States, be, and they are hereby, directed, authorized, and fully empowered, in the name and behalf of this State, to make, execute, and deliver, under their hands and seals, an ample deed of release and cession of all the right, title, interest, jurisdiction, and claim of the State of Connecticut to certain western lands, beginning at the completion of the forty-first degree of north latitude, one hundred and twenty miles west of the western boundary line of the Commonwealth of Pennsylvania, as now claimed by said Commonwealth, and from thence by a line drawn north, parallel to and one hundred and twenty miles west of the said west line of Pennsylvania, and to continue north until it comes to forty-two degrees and two minutes north latitude, whereby all the right, title, interest, jurisdiction and claim of the State of Connecticut, to the lands lying west of said line to be drawn as aforesaid, one hundred and twenty miles west of the western boundary line of the Commonwealth of Pennsylvania, as now claimed by said Commonwealth, shall be included, released, and ceded to the United States in Congress assembled, for the common use and benefit of the said States, Connecticut inclusive.

Connecticut reserved by this deed both the title and jurisdiction over a tract of her western lands lying between the western boundary of Pennsylvania and the then eastern boundary of her cession. It comprised a strip, 120 miles long and irregular in width, lying between parallels 41° and 42°02' N. (the northeastern part of the present State of Ohio). The tract was known as the "Western Reserve" of Connecticut in Ohio. Connecticut, by act of the legislature in October 1797, tendered to the United States a release of jurisdiction over this tract, which Congress accepted April 28, 1800, and Connecticut confirmed May 30, 1800. A part of this area, lying in the present Ohio counties of Erie, Huron, and Ottawa, was known as the "Fire Lands" because the lands were donated by Connecticut for the use of citizens of Danbury and other places as a recompense for losses by fire and raids by British troops during the Revolution.

The cession of South Carolina was described as follows (Donaldson, 1884, p. 76):

* * * all the territory or tract of country included within the river Mississippi and a line beginning at that part of the said river which is intersected by the southern boundary line of the State of North Carolina, and continuing along the said boundary line until it intersects the ridge or chain of mountains which divides the eastern from the western waters, then to be continued along the top of said ridge of mountains until it intersects a line to be drawn due west from the head of the southern branch of Tuqoloo River to the said mountains; and thence to run a due west course to the river Mississippi.

The State of North Carolina ceded Donaldson, 1884, p. 77)

the lands situated within the chartered limits of this State, west of a line beginning on the extreme height of the Stone Mountain, at the

place where the Virginia line intersects it; running thence along the extreme height of the said mountain, to the place where he Wataugo River breaks through it; thence a direct course to the top of the Yellow Mountain where Bright's road crosses the same; thence along the ridge of the said mountain, between the waters of Doe River and the waters of Rock Creek, to the place where the road crosses the Iron Mountain; from thence along the extreme height of the said mountain to where Nolichucky River runs through the same; thence to the top of the Bald Mountain; thence along the extreme height of the said mountain, to the Painted Rock, on French Broad River; thence along the highest ridge of the said mountain, to the place where it is called the Great Iron or Smoky Mountain; thence along the extreme height of the said mountain, to the place where it is called the Unicoi or Unaka Mountain, between the Indian towns of Cowee and Old Chota; thence along the main ridge of the said mountain to the southern boundary of the State.

It will be noted that the above description of the eastern boundary of her ceded possessions agrees in general terms with the description of the western boundary of North Carolina (p. 98).

The articles of cession by Georgia describe the area ceded as follows (Donaldson, 1884, p. 80):

"... the lands situated within the boundaries of the United States south of the State of Tennessee, and west of a line beginning on the western bank of the Chatahoochee River, where the same crosses the boundary line between the United States and Spain; running thence up the said river Chatahoochee, and along the western bank thereof to the great bend thereof, next above the place where a certain creek or river, called "Uchee" (being the first considerable stream on the western side, above the Cussetas and Coweta towns), empties into the said Chatahoochee River; thence in a direct line to Nickajack, on the Tennessee River; thence crossing the said last-mentioned river, and thence running up the said Tennessee River, and along the western bank thereof, to the southern boundary line of the State of Tennessee.

Of the area conveyed by these cessions to the General Government the part lying north of the Ohio was afterward erected into the "territory northwest of the River Ohio," and the rest lying south of that river, was known as the "territory south of the River Ohio." This did not include the area of the present State of Kentucky, which remained part of Virginia until it was admitted as a State in 1792.

The United States by act of Congress of September 9, 1850, purchased from the State of Texas about 124,000 square miles of land which Texas claimed when admitted to the Union. This land is now included in the States of Kansas, Colorado, New Mexico, Oklahoma, and Wyoming. (See fig. 29.)

TERRITORY NORTHWEST OF THE OHIO RIVER

The territory of the Ohio was bounded on the west by the Mississippi and a line running north from its source to the international boundary, on the north by the boundary line between the United States and the British possessions, on the east by the Pennsylvania and New York State lines, and on the south by the

Ohio River. (See fig. 21.) It comprised an area of approximately 278,000 square miles. It was made up of claims of individual States as follows (Donaldson, 1884, p. 161):

1. The Virginia claim, which consisted of all the territory west of Pennsylvania and north of the Ohio to the 41st parallel of north latitude; in addition, above that her claim by capture extended as far as the northern limits of the land under the Crown which had been subject to the jurisdiction of the Province of Quebec and as far as Lakes Michigan and Huron.
2. The Connecticut claim, which extended from the 41st parallel northward to the parallel of 42° 2' and from the west line of Pennsylvania to the Mississippi River.
3. The Massachusetts claim, which extended from the north line of the Connecticut claim above noted to lat 43° 43' 12" N. and from the western boundary of New York to the Mississippi.
4. The belt or zone lying north of the Massachusetts claim, extending thence to the Canada line and west to the Mississippi River, obtained from Great Britain by the treaty of peace of September 3, 1783, became public domain after the Virginia cession.
5. At the time of the cession by the State of Virginia, both Massachusetts and New York claimed the Erie triangle of about 324 square miles, which was subsequently bought by Pennsylvania and added to that State (p. 83).

From this territory were formed the States of Ohio, Indiana, Illinois, Michigan, and Wisconsin, the part of Minnesota east of the Mississippi River, and the northwest corner of Pennsylvania.

On July 13, 1787, a bill for its provisional division into not less than three nor more than five States was passed by Congress. In this bill the limits of the proposed States were defined, corresponding in their north and south lines to the present boundaries of Ohio, Illinois, and Indiana. The following extract gives the text of the ordinance defining these boundaries (Donaldson, 1884, p. 155):⁴⁸

⁴⁸ For a plan including maps, proposed by a committee of which Jefferson was chairman, for the subdivision of the territory northwest of the Ohio, which was adopted by Congress in 1784, see Wisconsin Hist. Soc. (1886, v. 2, p. 452). See also Smith (1882, v. 2, p. 603); for text of the ordinance, see Poore (1877, pt. 1, p. 423).

ARTICLE 5. There shall be formed in the said territory, not less than three nor more than five States; and the boundaries of the States, as soon as Virginia shall alter her act of cession, and consent to the same, shall become fixed and established as follows, to wit: the western State in said territory shall be bounded by the Mississippi, the Ohio, and the Wabash rivers: a direct line drawn from the Wabash and Post Vincents due north to the territorial line between the United States and Canada; and by the said territorial line to the Lake of the Woods and Mississippi. The middle State shall be bounded by the said direct line, the Wabash, from Post Vincents to the Ohio, by the Ohio, by a direct line drawn due north from the mouth of the Great Miami to the said territorial line, and by the said territorial line. The eastern State shall be bounded by the last-mentioned direct line, the Ohio, Pennsylvania, and the said territorial line: *Provided, however*, And it is further understood and declared, that the boundaries of these three States shall be subject so far to be altered, that, if Congress shall hereafter find it expedient, they shall have authority to form one or two States in that part of the said territory which lies north of an east and west line drawn through the southerly bend or extreme of Lake Michigan.

Apparently this ordinance was not put in force until a provisional government for the territory was instituted by the appointment of a governor and secretary on February 1, 1788.

By act of May 7, 1800, Congress divided the "territory northwest of the Ohio" into two separate governments and ordered

that all that part of the territory of the United States northwest of the Ohio river, which lies to the westward of a line beginning at the Ohio, opposite to the mouth of Kentucky river, and running thence to Fort Recovery, and thence north until it shall intersect the territorial line between the United States and Canada, shall, for the purposes of temporary government constitute a separate territory, and be called the Indiana Territory.

The eastern part was called the "territory northwest of the River Ohio," and a large part of it was admitted to the Union in 1802 as the State of Ohio. The remainder was added to Indiana Territory. (See fig. 26.)

In 1805 all that part of Indiana Territory lying north of a parallel drawn through the most southerly bend of Lake Michigan and east of a line drawn from the same point through the middle of Lake Michigan and north to the Canadian line became the Territory of Michigan (See fig. 31.)

By act of February 3, 1809, Indiana Territory was again divided, and the Territory of Illinois was created from the part lying west of the Wabash River and a meridian running through the city of Vincennes, extending thence to the Canada line.

On December 11, 1816, Indiana was admitted to the Union as a State, with its boundaries defined as at

present, and on December 3, 1818, Illinois was likewise admitted.

The act of June 28, 1834, added to the Territory of Michigan a part of the Missouri River drainage basin as far west as the White Earth River and north to the 49th parallel and included for the first time a part of the drainage basin of the Red River, south of the 49th parallel, under a Territorial government. This addition to Michigan included also a small part of the Louisiana Purchase. (See p. 127 and fig. 31.)

Wisconsin Territory was formed in 1836 from the part of the Territory of Michigan west of the present State of Michigan. On January 26, 1837, Michigan was admitted into the Union, with its present boundaries. On June 12, 1838, all that part of Wisconsin Territory from its source to the international boundary was made into the Territory of Iowa, and in 1848 Wisconsin was admitted as a State, with its boundaries as at present defined.

The admission of Wisconsin appears to have left the area which is now the northeastern part of Minnesota, lying east of the Mississippi and a line drawn due north from its source, without any government until the formation of Minnesota Territory, in 1849.

TERRITORY SOUTH OF THE OHIO RIVER

The "territory south of the River Ohio," the government of which was provided for by act of Congress approved May 26, 1790, was bounded on the north by the present northern boundary of Tennessee, on the east by the States of North Carolina, South Carolina, and Georgia, and on the west by the Mississippi River. It included besides the Tennessee area nominal possessions to the 31st parallel. The cessions that made up this region are as follows:

1. The area ceded by North Carolina was described as extending from lat 36°30' N. (since found to be 36°33') southward to 35° and from the western boundary line of the present State to the Mississippi River. This is now the State of Tennessee.
2. The area ceded by South Carolina formed a belt 12 or 14 miles in width lying south of the 35th parallel and extending from her western boundary to the Mississippi River. It is doubtful whether under the terms of the original charters South Carolina possessed this strip or whether it was included in the possessions of Georgia. (See p. 99.)
3. The area ceded by Georgia comprised most of the territory of the present States of Alabama and Mississippi north of the 31st parallel.

Tennessee was admitted as a State in 1796. In 1799 Congress organized as the Territory of Mississippi a small rectangular area, bounded on the west by the

Mississippi River, on the north by a parallel through the mouth of the Yazoo River, on the east by the Chattoohocchee River, and on the south by the 31st parallel of north latitude. This area was subsequently enlarged so as to include the whole of what is now Mississippi and Alabama and a strip along the gulf coast, which was at that time claimed by Spain. In 1817 the Territory was divided, and the eastern portion was made into Alabama Territory. Subsequently the two Territories were admitted as States.

LOUISIANA, THE AREAS FORMERLY BELONGING TO MEXICO, AND THE OREGON REGION

The Louisiana Purchase was effected in 1803. In 1804 the region thus obtained was divided into two parts: the southern part was organized as Orleans Territory, and the remainder was called the District of Louisiana. The State of Louisiana, comprising most of the Territory of Orleans, was admitted to the Union in 1812. In the same year it was enlarged by the addition of the area lying between the Mississippi and Pearl Rivers, in the southeastern part, and the name of the District of Louisiana was changed to the Territory of Missouri. (See fig. 27.) In 1819 Arkansas Territory was created, and in 1836 it was admitted as a State. (The State name was spelled with an "s" in place of the final "w.")

The Arrowsmith Map of 1814 (fig. 14) shows the extent of the cartographic knowledge of the area covered by the conterminous 48 States previous to the establishment of boundaries of the Western and Midwestern States.

In 1821 the State of Missouri was formed from another part of the Territory of Missouri, and in 1836 the boundaries of the State were extended to their present limits. In 1834 the part of this Territory lying north of the State of Missouri and east of the Missouri and White Earth Rivers was attached to the Territory of Michigan. (See fig. 31.) In 1836 this portion became part of the Wisconsin Territory. In 1838 it became part of the Territory of Iowa. In 1846 the State of Iowa was created, and in 1849 the remainder of the Iowa Territory was organized as the Territory of Minnesota. Minnesota was admitted as a State on May 11, 1858, with its present boundaries.

Indian Territory (unorganized) was set apart by act of June 30, 1834, and described as follows (4 Stat. L. 729, 733; see fig. 36):

" * * * all that part of the United States west of the Mississippi, and not within the States of Missouri and Louisiana, or the Territory of Arkansas * * * shall be taken and deemed to be Indian country."

Apparently this covered a large part of the area previously designated Territory of Missouri, but for

judicial control the same act restricted the area to that commonly known as Indian Territory and bounded as follows: On the north by the north line of lands assigned to the Osage tribe of Indians, produced east to the State of Missouri; on the west by the Mexican possessions (100th meridian); on the south by the Red River; and on the east by the line of the Territory of Arkansas and the State of Missouri (Royce, 1899).

While the cessions by the States and the Louisiana region were being subdivided, Texas was admitted to the Union, and by the treaty of Guadalupe-Hidalgo and the Gadsden Purchase the United States acquired from Mexico the area west of the northern part of Texas and south of the 42d parallel. In the same period the northern boundary had been established on the 49th parallel to the Pacific Ocean.

Out of the great western region thus acquired were carved the following Territories:¹⁶

The Territory of Oregon, formed in 1848, extended from lat 49° N. southward to lat 42° and from the Pacific Ocean east to the summit of the Rocky Mountains. (See fig. 43.)

California was admitted as a State in 1850 with the same limits which it possesses at present.

The Territory of Utah, formed in 1850 (see fig. 45), extended from the 42d parallel southward to the 37th and from the California boundary line eastward to the Rocky Mountains.

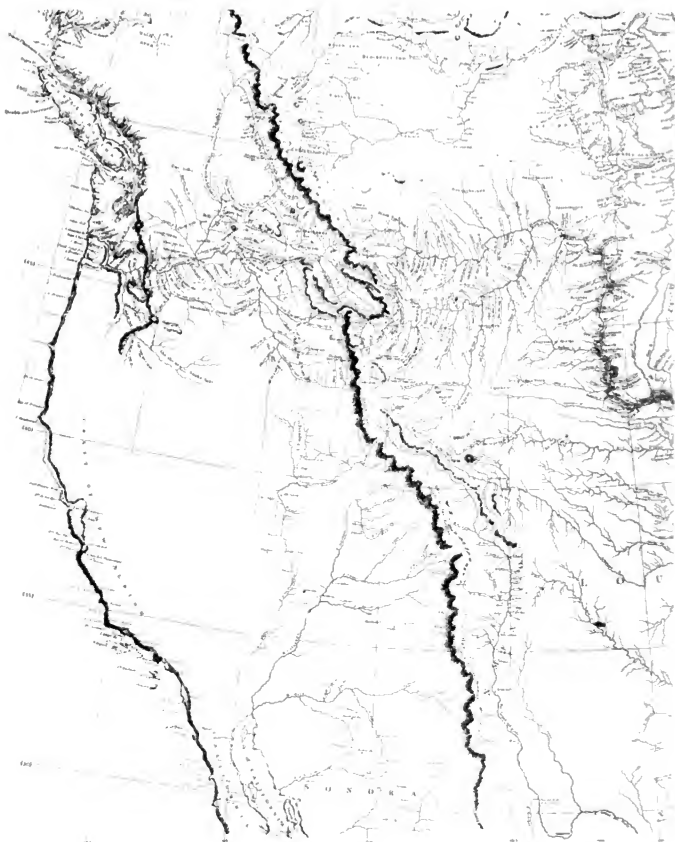
The Territory of New Mexico comprised all the country lying south of Utah to the boundary lines of Texas and Mexico and from the California boundary eastward to the boundary of Texas. (See fig. 47.)

The Territory of Nebraska, formed from Missouri Territory in 1854, comprised the country from the 49th parallel to the 40th and from the Missouri and White Earth Rivers westward to the summit of the Rocky Mountains. (See fig. 35.)

The Territory of Kansas, formed by the same act as Nebraska, comprised the country extending from Missouri westward to the boundary of New Mexico and Utah and from the south boundary of Nebraska to the 37th parallel.

The Territory of Washington was formed in 1853 from a part of Oregon, its southern boundary being the

¹⁶ For an outline of historical events relating to the organization of States west of the Mississippi and the settlement of their boundaries, see Higgins (1922, p. 397-455). For titles of manuscripts and published papers relating to the Territories, see Carnegie Inst. Washington (1911).





extent of cartographic knowledge of the area of the conterminous United States at that time.
the United States: Carnegie Institution of Washington Pub. 401, pl. 29.)

Columbia River and the 46th parallel, and its east line being the summit of the Rocky Mountains. (See fig. 43.)

Oregon was admitted as a State in 1859, with its boundaries as they are now. The portion cut off from Oregon Territory was placed under the Territorial government of Washington.

The Territory of Dakota, formed in 1861, comprised all that region included in the present States of North Dakota and South Dakota and thence westward to the summit of the Rocky Mountains. (See fig. 34.)

The Territory of Nevada was organized from the western part of the Territory of Utah in 1861. (See fig. 45.) As originally constituted, its eastern line was the 39th meridian west from Washington, and its southern boundary was the 37th parallel. It was admitted as a State in 1864, when its eastern boundary was made the 38th meridian (approximately 115°03' west from Greenwich). In 1866, by act of Congress, the eastern boundary was moved 1° still farther east and placed upon the 37th meridian west from Washington, and the triangular portion contained between the former southern boundary, the boundary of California, the Colorado River, and the 37th meridian was added, thus giving the State its present limits.

The Territory of Colorado was formed in 1861, with the limits of the present State. It was admitted as a State in 1876.

The Territory of Arizona, formed in 1863, included that part of New Mexico lying west of the 32d meridian west of Washington.

The Territory of Idaho was formed in 1863 from parts of Dakota and Washington Territories. As originally constituted it included the area lying east of the present eastern limits of Oregon and Washington to the 27th meridian west of Washington. Its southern boundary was the northern boundary of Colorado and Utah—that is, the 41st and 42d parallels of latitude. (See fig. 44.) From this Territory was detached in 1864 the Territory of Montana, having nearly the limits of the present State, and in 1868 the Territory of Wyoming; these changes reduced Idaho to its present dimensions.

The Territory of Oklahoma, organized in 1890 from a part of the Indian Territory and the public-land strip north of Texas, when admitted as a State in 1907 included the Indian Territory also. (See fig. 36.)

Nearly all boundaries of States west of the Mississippi, as well as those of many Central and Southern States, were surveyed under the direction of the Gen-

eral Land Office. Notes of all such surveys and plats for most of them are now on file in the Bureau of Land Management, Department of the Interior, or in the Cartographic Records Division, National Archives and Records Service, Washington, D.C. Many of the field notes are in excellent form, in books especially prepared for them, and are illustrated by photographs or sketches. Other notes are in books of field notes with the regular township surveys. Many resurveys or retracements of short parts of boundary lines have been made, and numerous corners have been reestablished in connection with the regular surveys of the public lands, which are not mentioned in the foregoing pages but are noted in the records of the General Land Office.

The notes and plats are open to public inspection and are indexed so that reference to them is easy; also, copies are supplied to anyone on payment of nominal fees.

Historical diagrams showing changes in State or national boundaries are to be found in many publications, a few of which are listed below:

Faria, J. T., 1926. *The romance of the boundaries*: New York, Harper & Bros. This book contains a bibliography of boundary references with 138 entries.

Lamberton, R. H., 1884. *An historical atlas . . . from the dawn of history to the present time*: 7th ed., New York, Townsend MacCoun.

MacCoun, Townsend, 1901. *An historical geography of the United States*: Revised ed., New York, Silver, Burdett & Co.

Mowry, W. A., 1902. *The territorial growth of the United States*: New York, Silver, Burdett & Co.

Stocking, S. W., 1874. *Areas and political divisions of the United States, with map, in Statistical atlas of the United States*: Bureau of the Census, Washington.

U.S. Bureau of Statistics, *Monthly summary of commerce and finance of the United States for August 1902*.

State boundary surveys by the General Land Office are related to the surveys of the public lands under the rectangular system. The public land surveys are based on a system of principal meridians and base lines intersecting at right angles at an initial point (figs. 15, 16). The geodetic position of this point is determined. Surveys dependent on a principal meridian often, but not always, extend to the State line. Details of the rectangular system are given in the *Manual of Surveying Instructions*, 1973, of the Bureau of Land Management, U.S. Department of the Interior.

PAYMENTS TO THE STATES

At the last session of the Twenty-second Congress an act was passed "to appropriate for a limited time the proceeds of the sales of the public lands of the United States and for granting lands to certain States," but it was not approved by President Jackson who, under date of December 4, 1833, in a long message to the Twenty-third Congress (see U.S. 53d Cong., 1896,

2d sess., H. Doc. 210, pt. 3, p. 56-69), set forth his reasons for withholding his signature. In that message he gave an excellent historical account of the State cessions by which the public lands had been in part acquired.

A somewhat similar act (5 Stat. L. 55) approved June 23, 1836, by President Van Buren, directed that all money in the Treasury on January 1, 1837, in excess of \$5 million be divided among the States in proportion to the number of their Representatives in Congress, to be paid in quarterly installments and to be returned to the United States when required by Congress. Three installments were paid, amounting in all to \$28,101,644.91. Payment of the fourth installment was postponed indefinitely by act of October 2, 1837. No part of these payments has ever been returned by the States.

Other payments to States from the proceeds of land sales were authorized by act of September 4, 1841 (5 Stat. L. 453), but were discontinued by act of August 30, 1842 (5 Stat. L. 557).

THE BOUNDARY LINES OF THE STATES¹⁷

MAINE¹⁸

The first charter that related to the area forming the present State of Maine (fig. 4) was that granted by Henry IV of France to Pierre du Gast, Sieur de Monts, in 1603, known as the charter of Acadia; it embraced the whole of North America between the 40th and 46th degrees of north latitude. Under this charter several exploring expeditions along the coast were made in 1604, 1605, and 1606; and in 1606 it was decided to make a permanent settlement at Port Royal, now Annapolis, Nova Scotia. No attempts were made under this charter to plant colonies within the limits of the present State of Maine.

By the first charter of Virginia (see p. 92), granted by James I in 1606, the lands along the coast of North America between the 34th and 45th degrees of north latitude were given to two companies, to one of which, the Plymouth Company, was assigned that part of North America including the coast of New England. The first colony in Maine was planted on the peninsula of Sabino, at the mouth of the Kennebec River, now Hunsell Point, on August 19, 1607, by George Popham. The colonists returned to England in the autumn of 1608.

James I, in 1620, granted a charter to the Plymouth Company, in which may be found the following words (Thorpe, 1909, v. 6, p. 1829):

Wee therefore, * * * Do * * * grant, ordaine and establish, that all that Circuit, Continent, Precincts, and Limits in America, lying and being in Breadth from Forty Degrees of Northerly Latitude, from the Equinoctiall Line, to Forty-eight Degrees of the said Northerly Latitude, and in length by all the Breadth aforesaid throughout the Maine Land, from Sea to Sea, with all the Seas, Rivers, Islands, Creekes, Inlets, Ports, and Havens, within the Degrees, Precincts, and Limits of the said Latitude and Longitude, shall be the Limits, and Bounds, and Precincts of the second Colony: And to the End that the said Territories may forever hereafter be more particularly and certainly known and distinguished, our Will and Pleasure is, that the same shall from henceforth be nominated, termed, and called by the Name of New-England, in America.

William Alexander, Earl of Stirling, claimed that under a grant given in 1621 he was entitled to land on the coast of Maine which had been granted to the Plymouth Company, and by direction of James I that company issued a patent to him (Thorpe, 1909, v. 6, p. 1621)

for a tract of the mainland of New England, beginning at Saint Croix and from thence extending along the sea-coast to Pemaquid and the river Kennebeck.

The heirs of the Earl of Stirling sold that tract to the Duke of York in 1663.

In 1622 Capt. John Mason and Sir Ferdinando Gorges obtained from the council of New England (Plymouth) a grant of lands lying between the Merrimack and Sagadahock (Kennebec) Rivers and extending back to the rivers and lakes of Canada. This tract was named the Province of Maine and included New Hampshire and the western part of Maine. Mason and Gorges, in 1629, by mutual consent divided their territory in two by Piscataqua River. That part east of this river was relinquished to Gorges, who called it Maine.

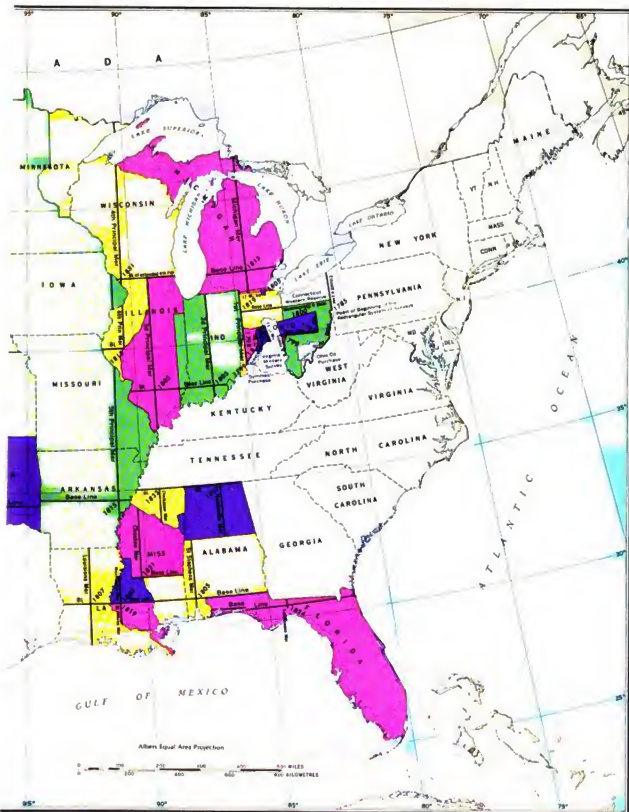
The charter of the Plymouth Company was surrendered to the King in the year 1635.

King Charles I, in 1639, granted a charter to Sir Ferdinando Gorges which virtually confirmed the patent given to him by the Plymouth Company in 1622. The following extract from that charter (Thorpe, 1909, v. 6, p. 1626) defines the boundaries:

All that Parte Purpurie and Porcon of the Mayne Lande of New England aforesaid beginning all the entrance of Pascataway Harbor and soe to passe up the same into the River of Newichewanocke and through the same unto the furthest heade thereof and from thence Northwestwards till one hundred and twenty miles bee finished and from Pascataway Harbor mouth aforesaid Northeastwards along the Sea Coast to Sagadahock and upp the River thereof to Kynbecky River and through the same into the heade thereof and into the Lande

¹⁷ For a condensed historical description of the boundaries of the United States, see *Encyclopedia Americana* (1920, v. 4, p. 329-342). This article contains a bibliography on boundaries comprising several hundred entries.

¹⁸ A general discussion of the boundaries of the New England States is given by Cushing (1920). For reference to early voyages of the Northmen to Iceland, Greenland, and the New England coast about the year 1000, see Preble (1917, p. 160-167); Kohl (1869, v. 1, chap. 2); Gray (1931).



base lines used for public land surveys.

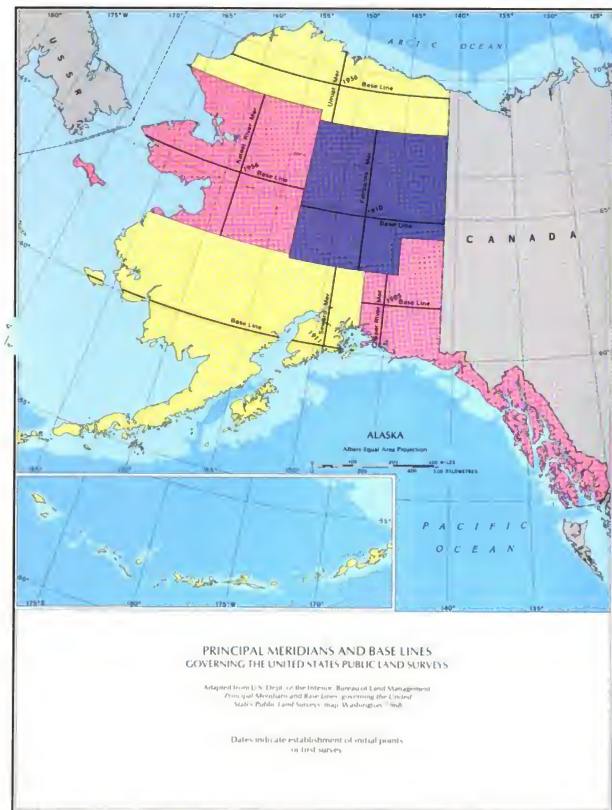


FIGURE 16.—Principal meridians and base lines in Alaska.

Northwestwards until one hundred and twenty myles bee ended being accepted from the mouth of Sagadahocke and from the period of one hundred and twenty myles aforesaid to crosse over Lande to the one hundred and twenty myles and formerly reckoned upp into the Lande from Pascataway Harbor through Newichewannocke River and also the Northe halfe of the Isles of Shoales together with the Isles of Capawock and Nawnican neere Cape Cod as alsoe all the islands and Ilets lyvinge within five leagues of the Mayne all alonge the aforesaid Coasts betweene the aforesaid River of Pascataway and Sagadahocke with all the Creekes Havens and Harbors thereunto belonginge and the Revercon and Revercons Remyander and Remyanders of all and singular the said Landee Rivers and Premises. All which said Part Purport or Porcion of the Mayne Lande and all and every the Premises herein before named Wee Doe for us our heires and successors create and incorporate into One Province or Countie.

And Wee Doe name ordeyne and appoynt that the porcion of the Mayne Lande and Premises aforesaid shall forever hereafter bee called and named The Province or Countie of Mayne.

In 1664 Charles II granted certain islands on the coast and a large territory west of the Connecticut River (see New York, p. 74, for the boundaries) to the Duke of York, who had the preceding year purchased a part of the present State of Maine from the heirs of the Earl of Stirling; the 1663 purchase was for a time called Pemaquid.

In 1674 Charles II made a new grant to the Duke of York in substantially the same terms as that of 1664, including as before a part of Maine. (See New York, p. 75.)

In the year 1677 Ferdinando Gorges, a grandson of Sir Ferdinando Gorges, sold and gave a deed of the Province of Maine to John Usher, a merchant of Boston, for £1,250. In the same year Usher gave a deed of the same territory to the governor and company of Massachusetts Bay, who had received a grant from the council of Plymouth in 1628, confirmed by the King in 1629.

Pemaquid and its dependences, forming Cornwall County, under the jurisdiction of New York, were annexed to the New England government by a royal order dated September 18, 1686. (Maine Hist. Soc., 1857, v. 5, p. 4.)

The charter of Massachusetts Bay of 1629 having been canceled in 1684, William and Mary in 1691 granted a new one incorporating the Provinces of Maine and Acadia, or Nova Scotia, and the colonies of Massachusetts Bay and Plymouth into one royal Province by the name of the Province of the Massachusetts Bay in New England. The right of government over the district of Maine thus acquired was exercised by Massachusetts until 1819, when measures were taken to admit Maine as an independent State;¹⁸ Congress, by act approved March 3, 1820 (3 Stat. L. 544), effective March 15, 1820, admitted Maine to the Union.

The north and east boundaries were fixed by the United States and Great Britain. (See p. 12, 13, 17, 18.) The geographic position of the extreme north point of Maine,

which falls in the middle of the St. Francis River, is lat 47°27'35.8" N., long 69°13'30.4" W.

The western boundary was for a long time a source of contention between Maine and New Hampshire. In 1731 commissioners from New Hampshire and from Massachusetts, who had been appointed to fix the boundary, met but were unable to agree. New Hampshire appealed to the King, who ordered that a settlement should be made by commissioners from the neighboring Provinces. The board met at Hampton in 1737. The commissioners fixed on substantially the present boundary, wording their report as follows (New Hampshire Hist. Soc., 1827, v. 2, p. 274-278):

Beginning at the entrance of Pascataqua Harbor, and so to pass up the same to the River Newichawack, and thro' the same into the furthest head thereof, and hence run north 2 degrees west till 120 myles were finished, from the mouth of Pascataqua Harbor, or until it meets with His Majesty's other governments.

This boundary was confirmed by the King, April 9, 1740.

In 1827, difficulties having again risen about the boundary between Maine and New Hampshire, commissioners were appointed from each State to determine it. The line agreed to by the commissioners in their report, dated November 13, 1828, is described in "Resolves of the Ninth Legislature" (1828-29) of Maine (p. 39-43) as follows:

The Report of the Commissioners appointed by his Majesty's order in Council of February 22nd, 1735, and confirmed by his order of the 9th of April, 1740, having established.

"That the dividing line shall pass up through the mouth of Pascataqua Harbor, and up the middle of the river of Newichawack, part of which is now called the Salmon falls, and through the middle of the same to the farthest head thereof, &c.," and "that the dividing line shall part the Isle of *Sholes*, and run through the middle of the Harbor, between the islands to the sea on the southerly side," &c. We have not deemed it necessary to commence our survey until we arrived north, at the head of Salmon falls river: which was determined by Bryant, at his survey in 1740, to be at the outlet of Eastpond, between the towns of Wakefield and Shapleigh. From that point we have surveyed and marked the line as follows, viz: We commenced at the Bryant rock, known as such by tradition, which is a rock in the middle of Salmon falls river, at the outlet of Eastpond, about six feet in length, three feet in breadth, three feet in depth, and two feet under the surface of the water, as the dam was at the time of the survey, to wit, October 1, 1827; said stone bears south 71° west, three rods and eight links from a large rock on the eastern bank, marked '1827,' and bears also from a rock near the mill dam (marked 'H') north 19°30' west, and distant 12 rods and 21 links. At this point the variation of the needle was ascertained to be *nine degrees west*. From the above stone the line is north 7°41' east, 178 rods to Eastpond, and crossing the pond 311 rods in width, to a stone Monument which we erected up on the bank, about three and an half feet high

¹⁸See Massachusetts Legislature Acts of June 19, 1819, and Feb. 25, 1820.

above the surface of the ground, marked N on the west side and M on the east side, which description applies to all the stone monuments hereinafter mentioned, unless they are otherwise particularly described: thence the same course, 225 rods, to Fox ridge and to a stone monument, which is placed upon the north side of the road that leads from Wakfield to Shapleigh; thence 200 rods to Belch's pond—across the pond, 103½ rods—across a peninsula 36 rods—across a cove 51 rods and 17 links, across a second peninsula, 48 rods; across a second cove, 27 rods 10 links; thence 370 rods to the lead leading from Newfield to Wakfield and a stone monument, erected on the north side of the same, near Campenell's house: thence north 6°10' east, 590 rods, to the line of Parsonfield, to a stone monument with additional mark "1828." At this point the variation of the needle was found to be 9°15' west. Thence same course 511 rods, crossing the eod of Province pond to a stone monument on the Parsonfield road, near the house of James Andrews, also with additional mark "1828;" thence north 8°38' east, 208 rods to the old corner-stone of Ellingham, about two feet above the ground, and not marked; thence north 8°55' east, 277 rods, to a large round stone about three feet diameter and two feet high, marked N and M, by the road upon Towle's Hill; thence north 7°55' east, 631 rods to a stone monument, on the road leading from Parsonfield to Ellingham. At this point the variation of the needle was found to be 9°30' west; thence north 5°02' east, 734 rods to a pine stump, upon a small island in Ossipee river at the foot of the falls; thence north 10° east, 30 rods, to a stone monument on the north side of the new road from Porter to Ellingham; thence the same course, 558 rods, to the top of Bald Mountain; thence same course, 316 rods, to the top of Bickford Mountain; thence same course 193 rods, to a stone monument on the north side of the road leading from Porter to Eaton. At this point the variation of the needle was found to be 9°45' west; thence north 8°5' east, 744 rods, to Cragged Mountain; thence same course, 67 rods, to the corner of Eaton; thence same course, 787½ rods, to the corner of Conway; thence same course, 610½ rods to a stone monument on the south side of the road leading from Brownfield to Conway centre: thence north 8° east, 871 rods, to a stone monument on the south side of the road leading from Fryeburg village to Conway—at this point the variation of the needle was found to be 10° west; thence same course, 4 rods, to a stone monument on the north side of the same road: thence north 8°15' east, 102 rods, to Saco river; thence same course 18 rods, across said river; thence same course 644 rods to a stone monument on the road leading to Fryeburg village, on the north side of the river. This monument is marked as before described and is about eight feet high above the ground; thence same course 142 rods to Ballard's Mill Pond; thence same course 61 rods six links across said pond; thence same course 344 rods to a stone monument on the east side of Chatham road; thence same course 690 rods to Kimball's Pond; thence same course 166 rods across said pond; thence same course 60 rods to a stone monument on the meadow.

From Kimballs Pond the line was extended northward for about 77 miles on a general course which has since been found to bear about 2° west of true north. The last mark on the line was a large yellow-birch tree on the divide between the St. Lawrence River and the rivers running south. The total distance, as meas-

ured, from this tree to Salmon River Falls was 112 miles 233 rods.

The Legislature of Maine approved the commissioners' report February 28, 1829, and the same action was taken by the Legislature of New Hampshire July 1, 1829.

Between 1828 and 1858 considerable parts of the almost unbroken forests through which the line of 1827-28 was run were cleared. Forest fires swept many large tracts of this territory, and as a consequence the marks of the 1827-28 survey for distance of nearly 80 miles—most of which were blazed trees, only seven stone posts having been set in this distance—were obliterated, so that there remained scarcely a vestige of the original line. The adjoining lands having become valuable and litigation being imminent, the legislatures of the two States in 1858 provided for another survey from Fryeburg to the Canada line, which was made in the same year. The line as then surveyed is as follows:

The point commenced at is an iron post situated on the line run in accordance with the "Treaty of Washington, of August 9, 1842," as the boundary between the United States and the province of Canada, at the corners of the States of Maine and New Hampshire.

A large flat stone was placed on the southern face of the monument, and marked "1858—N.H., Me.," on either side of a line cut in said stone bearing the direction of the State's line, viz. south, eight degrees west. From this point the line is south eight degrees west, seventeen rods seven links to a large yellow birch stub, the northern terminus of the former survey.

The iron post above referred to is called the Crown Monument and is mark 475 of the International Boundary Survey of 1915. In geographic position is lat 45° 18'20.0", long 71°05'04.4". The line was then run south to an old monument 60 rods north of Kimballs Pond.⁴⁰

In 1874 the boundary line between Maine and New Hampshire was resurveyed (Hitchcock, 1874, p. 173), and in 1927 the legislatures of the two States authorized a retracement and remarking of the line from Salmon Falls northward to the Canadian line (Maine Public Laws of 1927, chap. 21; New Hampshire Public Laws of 1927, chap. 114).

This survey was made by A. T. Fowler of the U.S. Geological Survey. It commenced in 1927 and was completed in 1929. The line was cleared throughout its entire course and was marked by bronze tablets set either in stone posts or in ledges. A total of 122 tablets were set and numbered serially from the south end. Connections were made to triangulation stations where practical.

NEW HAMPSHIRE

The first charter of Virginia, granted in 1606 (see p. 92), included the territory of the present State of New Hampshire, as did the charter of New England, granted

⁴⁰ The notes of this survey may be found in the New Hampshire Legislative Jour. for 1859, p. 764-767.

in 1620 (see p. 55), and the grant to Capt. John Mason and Sir Ferdinando Gorges of 1622 (see p. 35).

The president and council of New England made a grant to Capt. John Mason in 1629, in which the boundaries were given as follows (Thorpe, 1909, v. 4, p. 2434):

All y^e part of y^e Maine land in New England lying upon y^e sea Coast beginning from y^e Middle part of Merrimack River & from thence to proceed Northwards along y^e Sea coast to passcattaway river & soe forwards up wth in y^e a^d river & to y^e furthest head thereof & from thence Northwards until Three-score miles be finished from y^e first entrance of passcattaway river & also from Merrimack through y^e a^d River & to y^e furthest head thereof & soe forward up into y^e land Westwards until Threescore miles be finished and from thence to cross over land to y^e Threescore miles end accounted from passcattaway river together wth all Islands & Islets wth in five leagues distance of y^e premises & abutting upon y^e same or any parte or parcell thereof " " wth " " land " " Cap^t John Mason wth y^e consent of y^e president & council intends to name New Hampshire.

In 1635 the grant of 1629 was confirmed by a supplementary grant, of which the following is an extract (Thorpe, 1909, v. 4, p. 2441; Upham, 1920):

All y^e part of y^e Maine land of New England afores^d being from y^e middle part of Naumkeek river & from thence to proceed, East wards along y^e sea Coast to Cape Anne & round about y^e place to passcattaway harbour & soe forwards up wth in y^e river of Newickewanock & to y^e farthest head of y^e said river & from thence Northwards till six miles be finished from y^e first entrance of passcattaway harbour & also from Naumkeek through y^e river thereof up into y^e land west Sixty miles from wth period to cross over land to y^e sixty miles end accounted from passcattaway through Newickewanock river to y^e land north west afores^d & also all y^e south half of y^e Isles of Shoals all wth lands wth y^e consent of y^e Council shall from henceforth be called New Hampshire & also ten thousand acres more of land in New England afores^d on y^e south east part of Sagadahock at y^e mouth & entrance thereof from henceforth to be called by y^e name of Masconia.

The 1635 grant to the colony of New Hampshire included the south half of the Isles of Shoals. State sovereignty over the territorial waters between the isles and the mainland became an issue between New Hampshire and Maine with the increase of fishing. Definition of the common boundary by coordinates and azimuth has been agreed upon by the State Governments. At the present time (1975), the final decision awaits a consent decree by the U.S. Supreme Court.

After the death of Capt. John Mason, in December 1635, the affairs of the colony coming into bad condition, the colonists sought the protection of Massachusetts in 1641 and enjoyed it till 1675, when Robert Mason, a grandson of John Mason, obtained a royal decree, under which, in 1680, a colonial government was established. But no charter was given to the colony, and its government was continued only during the pleasure of the King. The commission or decree issued by the King in 1680 to John Cull, of Portsmouth, names the following limits for the colony:

Province of New Hampshire, lying & extending from three miles northward of Merrimack River, or any part thereof to y^e Province of Maine.

In the year 1690 the Province of New Hampshire was again taken under the jurisdiction of Massachusetts Bay, but in 1692 it was once more separated.

A controversy that arose between the Provinces of New Hampshire and Massachusetts Bay involved not only the boundary between New Hampshire and Maine (see p. 59) but also that between New Hampshire and Massachusetts. The commissioners appointed by the two Provinces having been unable to agree, New Hampshire appealed to the King, who ordered that the boundaries should be settled by a board of commissioners appointed from the neighboring colonies. The board met at Hampton in 1737 and submitted a conditional decision to the King, who in 1740 declared in council (Slade, 1823, p. 9)

that the northern boundary of the province of Massachusetts be a similar curve line, pursuing the course of the Merrimack river, at three miles distance, on the north side thereof, beginning at the Atlantic Ocean, and ending at a point due north of Pawtucket falls [now Lowell], and a straight line drawn from thence, due west till it meets with his Majesty's other Governments.

New Hampshire had claimed her southern boundary to be a line due west from a point on the sea 3 miles north of the mouth of the Merrimack River. Massachusetts had claimed all the territory within 3 miles north of any part of the Merrimack River. The King's decision gave to New Hampshire a strip of territory, more than 50 miles in length and varying in width, in excess of that which she claimed. This decree of the King was forwarded to Mr. Belcher, then governor of both the Provinces of New Hampshire and Massachusetts Bay, with instructions to apply to the respective assemblies to unite in making the necessary provisions for running and marking the line conformably to the said decree, and if either assembly refused, the other was to proceed *ex parte*. Massachusetts Bay declined to comply with this requisition. New Hampshire therefore proceeded alone to run and mark the line.

George Mitchell and Richard Hazen were appointed by Governor Belcher to survey and mark the line. Pursuant to this authority, in February 1741, Mitchell ran and marked the line from a point on the seacoast about 3 miles north of the mouth of the Merrimack River to a point about 3 miles north of the Pawtucket Falls, and Hazen, in March following, ran and marked a line from the point 3 miles north of Pawtucket Falls across the Connecticut River to the supposed boundary line of New York, on what he then assumed to be a due west course from the place of beginning. He was

instructed by Governor Belcher to allow for a westerly variation of the needle of 10° . The report of the surveyors has not been preserved, but the journal of Hazzen has been found. It was published in the *New England Historical and Genealogical Register*, July 1879, p. 323.

Subsequent investigation has proved that Hazzen's line was not run on a due west course, the allowance for the westerly variation of the needle being too large, throwing the line north of west. This mistake seems to have been known prior to the Revolution. In 1774 calculations were made by George Sproule, founded upon actual surveys and accurate astronomical observations, from which he determined that Hazzen's line was so far north of west as to lose to New Hampshire a tract of land computed at 59,872 acres. (*New Hampshire H. Jour.*, 1826, p. 304; Williams, 1794, p. 379).

In 1825 commissioners were appointed by the States of New Hampshire and Massachusetts to ascertain, run, and mark the line between the two States. New Hampshire asserted her claim to a due-west line, conformable to the decree of 1740, it being apparent from a survey made by the commissioners that the original line was north of west. The Massachusetts commissioners refused to run such a line, alleging that they were empowered only to ascertain and mark the original line.

On March 10, 1827, the Legislature of Massachusetts passed a resolution providing for the erection of durable monuments to preserve the boundary line between the States of Massachusetts and New Hampshire, as the same had been run and ascertained by the commissioners (see Massachusetts Legislature Resolves, 1827), and monuments were erected accordingly.

In 1885 the joint commission appointed by the States of New Hampshire and Massachusetts reran and marked the curved portion of the boundary following the course of the Merrimack River, changing it only to a trifling extent. This commission was, however, unable to agree upon the boundary west of Pawtucket Falls. The matter dragged along until finally in 1894 this commission, together with a commission representing Vermont, agreed to maintain the Hazzen line, and this line was retraced and re-marked from Pawtucket Falls to the northwest corner of Massachusetts.

Under the King's decree of 1740 the Province of New Hampshire claimed jurisdiction as far west as the territory of Massachusetts and Connecticut extended, thus

including the present State of Vermont. New York claimed all the country west of the Connecticut, under the charters of 1664 and 1674 to the Duke of York. A bitter controversy ensued. In 1749 the Governor of New Hampshire wrote to the Governor of New York as follows (Slade, 1823, p. 10):

PORTSMOUTH, November 17, 1749.

I think it my duty . . . to transmit to your Excellency the description of New Hampshire, as the King has determined it in the words of my commission, . . . In consequence of His Majesty's determination of the boundaries between New Hampshire and Massachusetts, a surveyor and proper chainmen were appointed to run the western line from 3 miles north of Pawtucket Falls; and the surveyor, upon oath, has declared that it strikes Hudson's River, about eighty poles north of where Mohawk's River comes into Hudson's River.

H. WENTWORTH.

The following is the description of the south boundary of New Hampshire as given by King George II to Benning Wentworth when Wentworth was appointed governor, July 3, 1771 (O'Callaghan, 1851):

. . . province of New Hampshire, within our Dominions of New England in America, bounded on the south by a similar Curve line pursuing the Course of the Merrimack River at three miles distance, on the North side thereof, beginning at the Atlantick Ocean & ending at a point due North of a place called Pawtucket Falls, and by a Straight Line drawn from thence due West Coast the said River 'till it meets with our other Governments, . . .

The south boundary of New Hampshire as surveyed between 1855 and 1898 is marked by 50 large cut-granite monuments at irregular intervals. The initial point of this survey is the southwest corner of New Hampshire and southeast corner of Vermont, marked by a copper bolt in the top of a block of granite set in a mass of concrete 6 feet square, "at or near ordinary low-water line" on the west bank of the Connecticut River, the geographic position of which is lat $42^{\circ}43'37.21''$ N., long $72^{\circ}27'32.08''$ W. A witness mark of polished granite, suitably inscribed, stands on the Massachusetts-Vermont line, 582 feet N. $87^{\circ}48'$ W. from the corner.

From the State corner the line was run on a general course about $2\frac{1}{4}^{\circ}$ south of east (true bearing), measured distance of 57.84 miles to

the boundary pine monument, so-called, standing between the towns of Pelham, New Hampshire, and Dracut, Massachusetts, in the pasture land owned by Zachariah Coburn, at a point where one George Mitchell, surveyor, marked a pine pitch tree, March 21, 1741, then supposed to be 3 miles due north of a place in the Merrimack River formerly called Pawtucket Falls, now Lowell.

This monument is also granite, and its geographic position is lat $42^{\circ}41'50.25''$ N., long $71^{\circ}19'22.02''$ W.

From this point the boundary consists of a series of straight lines, approximately paralleling Merrimack River and 3 miles distant therefrom.

The terminal mark is a granite monument, 42 by 14 by 12 inches in size marked.

S		S
Mass.	and	N.H.
1890		1890

on its south face and north face, respectively. It stands on Salisbury Beach about 80 feet from high-water line and 250 feet from low-water line of the Atlantic Ocean.

Its geographic position is lat $42^{\circ}52'19.28''$ N., long $70^{\circ}49'02.94''$ W. From this point the boundary extends for "three miles * * * to the limit of State jurisdiction" on a course $86^{\circ}07'30''$ E.

This survey was approved by Massachusetts (act of May 12, 1899, chap. 369) and by New Hampshire (act of Mar. 22, 1901, chap. 115). The acts of the State legislatures give the complete notes of the surveys. Copies of the notes and many geographic positions on the lines are given in the town boundary atlases prepared by the harbor and land commission of Massachusetts.

The question concerning the western boundary of New Hampshire was submitted to the King, who in 1764 made the following decree (Slade, 1823, p. 19):

AT THE COURT OF ST. JAMES,
The 29th day of July, 1764.

Whereas there was, this day read at the board, a report made by the Right Honorable the Lords of the Committee of council for plantation affairs, dated the 17th of this instant, upon considering a representation from the Lords Commissioners for trade and plantations, relative to the disputes that have, some years subsisted between the provinces of New-Hampshire and New-York, concerning the boundary line between those provinces—His Majesty, taking the same into consideration, was pleased with the advice of his privy council, to approve of what is therein proposed, and doth accordingly, hereby order and declare the western banks of the river Connecticut, from where it enters the Province of the Massachusetts Bay, as far north as the forty-fifth degree of northern latitude, to be the boundary line between the said two provinces of New Hampshire and New York. Whereas the respective Governors and Commanders in Chief of his Majesty's said Provinces of New-Hampshire and New-York, for the time being, and all others whom it may concern, are to take notice of His Majesty's pleasure hereby signified and govern themselves accordingly.

Notwithstanding this decree of the King, controversy and violence continued for many years; but the line was finally accepted and now forms the boundary

between the States of New Hampshire and Vermont. (See p. 64, 65.)

The northern boundary of New Hampshire, fixed by the British treaty of 1842 (p. 17), is described as follows:

Commencing at the "Crown Monument," so called, [now monument 475 of the Internal Boundary Comm.] at the intersection of the New Hampshire, Maine, and Province of Quebec boundaries, in latitude $45^{\circ}18'20''$, longitude $71^{\circ}05'04''$, thence by an irregular line along the divide to the head of Halls Stream and down the middle of that stream to a line established by Valentine and Collins previous to 1774 as the 45th parallel of latitude.

The end of this line in the middle of Halls Stream is in lat $45^{\circ}00'48.7''$ N., long $71^{\circ}30'05.7''$ W. The New Hampshire-Vermont line then runs east for about 1½ miles to the west bank of the Connecticut River, the approximate position of which is lat $45^{\circ}00'50''$ N., long $71^{\circ}27'57''$ W. This small area east of Halls Stream, known locally as "The Gore" (see fig. 17), is often incorrectly shown as a part of New Hampshire.

A historical description of the boundaries of New Hampshire is given by Harriman (1879, p. 550-558).

The title to the New Hampshire area in the vicinity of the Connecticut Lakes and north of the 45th parallel was for many years in dispute between New Hampshire and Canada. In 1829 the settlers in that locality organized an independent republic, which was called the Indian Stream Territory. Local government was in effect until after the Indian Stream War, in 1835, when New Hampshire took control (Bacon, 1906, p. 369-370; Faris, 1926, p. 33-43; U.S. 25th Cong., 1839, 3d sess., H. Rept. 176).



FIGURE 17.—"The Gore," at the northeast corner of Vermont.

VERMONT

The grants from King Henry of France in 1603 and King James of England in 1606 both included the territory which forms the present State of Vermont. It was also included in the charter of New England of 1620.

In the grants to the Duke of York in 1664 and 1674, all territory between the Connecticut and Delaware Rivers was included. New York therefore claimed jurisdiction of the territory now known as Vermont. (See fig. 18). Massachusetts, however, had made claim at an early period to the tract west of the Connecticut River that now forms a part of Massachusetts: she claimed also the greater part of the Vermont territory.

By the terms of the charter of Massachusetts Bay, of 1629 (Thorpe, 1909, v. 3, p. 1847), that colony was granted all the lands
which lie, and be within the space of three English Miles to the Northward of the said River called Monomack alias Merrymack, or to the Northward of any and every Parte thereof.

Under this clause, Massachusetts Bay claimed that its jurisdiction extended to a line 3 miles north of the northernmost part of the Merrimack River, such jurisdiction would embrace a large part of New Hampshire and Vermont. New Hampshire contested this claim and after several years' controversy was more than sustained by a decision of the King in 1740. (See p. 61.) New Hampshire in turn claimed the territory of Vermont on the ground that, as Massachusetts and Connecticut had been allowed to extend their boundaries within 20 miles of the Hudson River, its territory should go equally far, and contended that the King's decree of 1740 left that fairly to be inferred; also that the old charters of 1664 and 1674 were obsolete. By a decree of the King, however, the territory west of the Connecticut River, from the 45th parallel to the Massachusetts line, was declared to belong to the Province of New York. (See New Hampshire, p. 62.) As most of the settlers of Vermont were from New Hampshire, this decision of the King caused great dissatisfaction, and the Revolution found Vermont the scene of conflicting claims and the theater of violent acts, some culminating in actual bloodshed.

On January 15, 1777, delegates representing 51 towns comprised in the territory known as the "New Hampshire grants," on the west side of the Green Mountains, declared the area an independent State,⁴¹ to be

⁴¹ See U. S. Fourteenth Census, 1921, v. 1, p. 27, note 50, "Vermont, independent republic of Vermont admitted to the Union as a State in 1791."

called "New Connecticut, alias Vermont," but the title generally used in official papers for several years thereafter was "the New Hampshire grants." Sixteen towns in New Hampshire sought union with the new State, but this action was vigorously opposed by New Hampshire and was not approved by the Continental Congress. Massachusetts agreed to the independence of Vermont in 1781, and New Hampshire adjusted its differences with that State in 1782, but 8 years more passed before New York consented to the admission of Vermont to the Union. Vermont in the meantime had fixed upon a western boundary practically the same as at present, which was then described by reference to town boundaries as far north as the Poultney River, thence down the middle channel of that river to East Bay and northward to and through the middle of the deepest channel of Lake Champlain (Slade, 1823, p. 69-70, 193).

Vermont was admitted as an independent State by an act approved February 18, effective March 4, 1791. (1 Stat. L. 191).

In 1767, astronomic observations were made on the eastern shore of Lake Champlain, and a mark was set at the supposed position of the 45th parallel. From this point Valentine and Collins in 1772 surveyed and marked a line as far east as the Connecticut River for the eastern part of the northern boundary of the Province of New York (now the State of Vermont). Recent surveys show that this boundary for its entire length is from a quarter of a mile to 1.1 miles north of the 45th parallel,⁴² but by the convention between the United States and Great Britain of 1842 the line as marked west of Halls Stream to the deepest part of Lake Champlain was agreed upon as part of the boundary of the United States. The northwest corner of Vermont, which is the northeast corner of New York, falls in Lake Champlain, at lat 45°00'38.9" N., long 73°20'38.9" W.

Joint resolutions by the Legislature of the State of Vermont, approved November 22, 1912, and February 13, 1913, authorized the institution of a suit in the Supreme Court of the United States for the determination of the position of the boundary line between that State and New Hampshire. Vermont in its bill of complaint filed at the October term, 1915, asked that the New Hampshire boundary line be declared to be in the middle of the Connecticut River; New Hampshire in its reply asked that the boundary be fixed at the high-water line on the west bank of the river, and that the north boundary of Vermont end at Halls Stream, rather than at the Connecticut River $\frac{1}{4}$ miles farther east.

⁴² In an official report to the Governor of Vermont made in 1906, Samuel Watson declared that his observations showed that the boundary of Vermont near its eastern terminus was 6 ft 14 in. south of the 45th parallel, a statement which was grossly in error, if he referred to the geographic latitude.

In its decision of May 29, 1933 (289 U.S. 593), the Court ruled that the boundary line between the two States followed the low-water mark on the west bank of the Connecticut River.

The Court decreed that the boundary line should be marked on the ground and appointed S. S. Gannett of the U.S. Geological Survey to locate and mark the points which it specified along the west bank. This work was completed and submitted with geodetic positions, descriptions of points, and diagrams in 1936. See report of Vermont—New Hampshire Boundary Line Commission 1934-1936.

The south boundary of Vermont is part of the north boundary of Massachusetts, which was fixed by the King in council under date of August 5, 1740, and surveyed under the direction of Governor Belcher in 1741. It was resurveyed and re-marked by commissioners representing the two States between 1885 and 1898. This survey was commenced at the northwest corner of Massachusetts, at a monument consisting of a granite post 8 feet long and 14 inches square set nearly 5 feet in the ground. The faces toward the different States were marked "N.Y. 1898," "Mass. 1896," and "Vt. 1896." Its geographic position is lat 42°44' 44.7" N., long 73°15'54.13" W. (1927 N.A.D.). From this point the boundary is a nearly straight line, bearing about 2° south of east (true bearing), and runs 41 miles to the southeast corner of Vermont, which is a mark on the west bank of the Connecticut River. A description of this mark is given on page 62.⁶¹

The line between Vermont and New York was surveyed and marked by commissioners from the two States in 1814 and is as follows:⁶²

Beginning at a red or black tree, the northwest corner of Massachusetts, and running north 62°20' west as the magnetic needle pointed in 1814, 50 chains, to a monument erected for the southwest corner of the State of Vermont, * * * which monument stands on the brow of a high hill, descending to the west, then northerly in a straight line to a point which is distant 10 chains, on a course south 35 degrees west, from the most westerly corner of a lot of land distinguished in the records of the town of Pownal, in the State of Vermont, as the fifth division of the right of Gamaliel Wallace, and which, in the year 1814, was owned and occupied by Abraham Voshburgh; then north 35 degrees east, to said corner; and along the westerly bounds of said lot, 30 chains, to a place on the westerly bank of Hock River where a hemlock tree heretofore stood, noticed in said records as the most northerly corner of said lot; then north 1 degree and 20 minutes west, 6 chains to a monument erected by the said commissioners, standing on the westerly side of Hock River, on the north side of the highway leading out of Hock into Pownal, and near the northwesterly corner of the bridge crossing said river; then north 27 degrees and 20 minutes east, 30 chains, through the bed of the said river, to a large roundish rock on the northeasterly bank

thereof; then north 25 degrees west, 16 chains and 70 links; then north 9 degrees west, 18 chains and 60 links, to a white oak tree, at the southwest corner of the land occupied in 1814 by Thomas Wilsey; then north 11 degrees east, 77 chains, to the north side of a highway, where it is met by a fence dividing the possession of said Thomas Wilsey, Jr., and Emory Hunt; then north 46 degrees east, 6 chains; then south 66 degrees east, 26 chains and 25 links, then north 9 degrees east, 27 chains and 50 links, to a blue-slate stone, anciently set up for the southwest corner of Bennington; then north 7 degrees and 30 minutes east, 46 miles 43 chains and 50 links, to a bunch of hornbeam saplings on the south bank of Poultny River, the northernmost of which was marked by said last-mentioned commissioners, and from which a large butternut tree bears north 70 degrees west, 30 links, a large hard maple tree, south 2 chains and 86 links, and a white ash tree on the north side of said river, north 77 degrees east. * * * then down the said Poultny River, through the deepest channel thereof, to East Bay; then through the middle of the deepest channel of East Bay and the waters thereof to where the same communicate with Lake Champlain; then through the middle of deepest channel of Lake Champlain to the eastward of the islands called the Four Brothers, and the westward of the islands called the Grand Isle and Long Isle, or the Two Heroes, and to the westward of the Isle La Motte to the line in the 45th degree of north latitude, established by treaty for the boundary line between the United States and the British Dominions.

This line was changed in 1876 by a cession from Vermont to New York of a very small area west of the village of Fair Haven and opposite the mouth of the Castleton River which had been left on the west side of the Poultny River by a change in the course of that stream, described as follows:

All that portion of the town of Fairhaven, in the county of Rutland and State of Vermont, lying westerly from the middle of the deepest channel of Poultny River, as it now runs, and between the middle of the deepest channel of said river and the west line of the State of Vermont as at present established.

This cession was ratified by Congress April 7, 1880 (21 Stat. L. 72).

The Vermont-New York line was resurveyed and re-marked in 1904 from the Massachusetts-Vermont-New York corner north to the Poultny River.⁶³ There are now 101 substantial stone monuments on this line, which is 54.6 miles in length.

MASSACHUSETTS⁶⁶

The territory of Massachusetts was included in the first charter of Virginia, granted in 1606, and in the charter of New England, granted in 1620.

⁶¹ The full notes of this survey are given in the State acts relieving it (Massachusetts Acts of 1930, chap. 321, and Vermont Acts of 1930, chap. 137) and also in the folio volumes of the Harbor and Land Commission of Massachusetts: see report of the commissioners (Massachusetts H. Doc. 300, 1900).

⁶² New York Rev. Stat., 1875, 6th ed., v. 1, p. 122-123, Banks & Brothers; 1882, 7th ed., v. 1, p. 128.

⁶³ For a report of the survey, a plat of line, and descriptions and coordinates of each mark, see New York State Engineer and Surveyor Rept. for 1904, p. 301-345.

⁶⁶ The full legal name for Massachusetts is "The Commonwealth of Massachusetts."

In 1628 the council of Plymouth made a grant to the governor and company of Massachusetts Bay in New England, which was confirmed by the King, and a charter was granted in 1629, from which the following are extracts (Thorpe, 1909, v. 3, p. 1849):

*** Nowe, Knowe Yee, that Wee *** have given and graunted *** all that Parte of Newe England in America which lyes and extends betwene a greete River there comenly called Monomack River, alias Merrimack River, and a ceren other River there, called Charles River, being in the Bottoime of a certain Bay there, comenly called Massachusetts, alias Matachusetta, alias Massatusetts Bay; and also all and singular those Landes and Hereditaments whatsoever, lying within the Space of Three English Myles on the South Parte of the said River, called Charles River, or of any, or every Parte thereof; and also all and singular the Landes and Hereditaments whatsoever, lying and being within the space of Three English Myles to the southward of the Southermost Parte of the said Baye, called Massachusetts, alias Matachusetta, alias Massatusetts Bay; and also, all those Landes and Hereditaments whatsoever, which lye and be within the Space of Three English Myles to the Northward of the said River, called Monomack, alias Merrymack, or to the Norward of any and every Parte thereof, and all Landes and Hereditaments whatsoever, lying within the Lymits aforesaid, North and South, in Latitude and Breadth, and in Length and Longitude, of and within all the Breadth aforesaid, throughout the mayne Landes there, from the Atlantick and Western Sea and Ocean on the East Parte, to the South Sea on the West Parte;

*** Provided alwayes, That if the said Landes *** were at the tyme of the graunting of the said former Letters patents, dated the Third Day of November, in the Eighteenth Yeare of our said deare Fathers Raigne aforesaid, actually possessed or inhabited by any other Christian Prince or State, or were within the Boundes, Lymitts or Territories of that Southerne Colony then before graunted by our said late Father *** That then this present Graunt shall not extend to any such parties or parcells thereof, *** but as to those parties or parcells *** shall be vntilte voyd, thes presents or any Thing therein conteyned to the contrarie notwithstanding.

The charter of New England was surrendered to the King in 1635 (Thorpe, 1909, v. 3, p. 1860).

The charter of Massachusetts Bay, granted in 1629, was canceled by a judgment of the high court of chancery of England, June 18, 1684.

In 1686 Pemaquid (part of the present State of Maine) and its dependencies were annexed to the New England government.

In 1691 a new charter was granted to Massachusetts Bay, which included Plymouth Colony and the Provinces of Maine and Nova Scotia. The following are extracts from this charter (Thorpe, 1909, v. 3, p. 1876):

*** Wee doe *** will and Ordeyne that the Territories and Collenyes comenly called or known by the Names of the Colony of the Massachusetts Bay and Collony of New Plymouth the Province of Maine the Territtorie called Acadia or Nova Scotia and all that tract of

land lying betwene the said Territories of Nova Scotia and the said Province of Maine be Erected United and Incorporated *** into one reall Province by the Name of Our Province of the Massachusetts Bay in New England. *** all that parte of New England in America lying and extending from the greete River comenly called Monomack alias Merrimack on the Northpart and from three Miles Northward of the said River to the Atlantick or Western Sea or Ocean on the South part And all the Landes and Hereditaments whatsoever lying within the limits aforesaid and extending as far as the Outermost Points or Promontories of Land called Cape Cod and Cape Mallowat North and South and in Latitude Breadth and in Length and Longitude of and within all the Breadth and Compass aforesaid throughout the Main Land there from the said Atlantick or Western Sea and Ocean on the East parte towards the South Sea or Westward as far as Our Collonies of Rhode Island Connecticut and the Marragansett Countrey all alicie all that part of porcon of Main Land beginning at the Entrance of Pescata way Harbour and soe to pass vpp the same into the River of Newickawannock and through the same into the furthest head thereof and from thence Northward till One Hundred and Twenty miles be finished and from Pescata way Harbour mouth aforesaid North-Eastward along the Sea Coast to Sagadehock and from the Period of One Hundred and Twenty Miles aforesaid to cross over Land to the One Hundred and Twenty Miles before reckoned vpp into the Land from Pescataway Harbour through Newickawannock River and alsoe the North halfe of the Isles and Shoales together with the Isles of Cappaewock and Nanukett near Cape Cod aforesaid and alsoe [all] Landes and Hereditaments lying and being in the Countrey and Territory comenly called Acadia or Nova Scotia And all those Lands and Hereditaments lying and extending betwene the said Countrey or Territory of Nova Scotia and the said River of Sagadehock or any part thereof And all Lands Grounds Places Soiles Woods and Wood grounds Havens Ports Rivers Waters and other Hereditaments and premisses whatsoever, lying within the said bounds and limits aforesaid and every part and parcell thereof and alsoe all islands and Islets lying within ten Leagues directly opposite to the Main Land within the said bounds.

The present northern boundary of Massachusetts was first surveyed and marked in 1741. (See New Hampshire, p. 61, 62, and Vermont, p. 64.)

The east-west part of the boundary between Massachusetts and Rhode Island is a part of the original southerly line of the territory granted by the council at Plymouth to Sir Henry Roswell and others in the third year of the reign of King Charles I and redefined in the charter granted to the colony of Massachusetts Bay in 1691. This line was for more than 200 years a matter of dispute that was in some respects the most remarkable boundary question with which this country has had to deal. Twice the question went to the Supreme Court of the United States, and in one of these suits Daniel Webster and Rufus Choate were employed as counsel for Massachusetts.

As early as 1642 the line between the two colonies was marked in part by Nathaniel Woodward and Solomon Saffrey, who set up on the plain of Wrentham a stake as the commencement of the line between Massachusetts Bay and Rhode Island. This stake Woodward and Saffrey thought marked a point 3 miles south of the Charles River (Harriman, 1879, p. 553).

In 1710-11 commissioners appointed from Massachusetts and Rhode Island agreed upon the north line

of Rhode Island, and their action was approved by the legislatures of both colonies. The agreement was as follows (4 Howard 631):

That the stake set up by Nathaniel Woodward and Solomon Saffrey, skilful, approved artists, in the year of our Lord one thousand six hundred and forty-two, and since that often renewed, in the latitude of forty-one degrees and fifty-five minutes, being three English miles distant southward from the southernmost part of the river called Charles River, agreeable to the letters-patent for the Massachusetts province, be accounted and allowed on both sides the commencement of the line between Massachusetts and the colony of Rhode Island * * *.

In 1719 this line was run by commissioners appointed for the purpose, but subsequent investigation has shown that it was run very inaccurately (Rhode Island Acts, May, 1867, p. 6).

The line between Massachusetts and the eastern part of Rhode Island was fixed by the commissioners in 1741. The colony of Rhode Island appealed from their decision to the King, but in 1746 he affirmed it by a royal decree. (Gannett, 1904, p. 56-59.) In accordance with this decree the line was run in 1746 by commissioners of Rhode Island whose report may be found in the U.S. Supreme Court records for the December term, 1852, pages 208-210.

In 1748 the Legislature of Rhode Island appointed commissioners to continue the line to the Connecticut corner, the Woodward and Saffrey stake being recognized as the place of beginning. Massachusetts failed to appoint commissioners, whereupon the Rhode Island commissioners proceeded to complete the running of the line. In their report they say with reference to the initial point of their survey (4 Howard 639):

That we, not being able to find any stake or other monument which we could imagine set up by Woodward and Saffrey, but considering that the place thereof was described in the agreement mentioned in our commission, by certain invariable marks, we did proceed as followeth, namely: We found a place where Charles River formed a large current southerly, which place is known to many by the name of Poppatosh Pond, which we took to be the southernmost part of said river, from the southernmost part of which we measured three English miles south, which three English miles did terminate upon a plain in a township called Wrentham.

From this time forward, repeated steps were taken by Rhode Island, by resolutions and by appointment of commissioners, to ascertain and run the line in connection with commissioners from Massachusetts. Commissioners from both colonies met more than once, but they failed to agree upon a boundary in place of that established under the agreements of 1711 and 1718. As a ground for these efforts Rhode Island alleged that a mistake had been made by her commissioners in commencing the line at the accepted position of the Woodward and Saffrey stake, which, as set on Wrentham Plain, at Burnt Swamp Corner, was considerably more than 3 miles south of the Charles River (14 Peters 273).

This controversy, however, embraced the entire line from Connecticut to the Atlantic Ocean. Massachusetts asserted that an encroachment had been made on her territory from Burnt Swamp Corner to the ocean by Rhode Island, who, on her part, claimed that the jurisdictional line of Massachusetts from that corner to the Connecticut line was, in its whole extent, upon the territory of Rhode Island. The legislatures of the respective States having failed after repeated efforts to adjust the controversy, Rhode Island in 1832, by a bill in equity, brought the subject of the northern boundary from Burnt Swamp Corner to the Connecticut line before the Supreme Court of the United States, which in 1846 decided that the jurisdictional line claimed by Massachusetts was the legal boundary of the two States between these points.

In this decision, the following declaration was made (4 Howard 639):

"For the security of rights, whether of states or individuals, long possession under claim of title is protected, and there is no controversy in which this great principle may be invoked with greater justice and propriety than in a case of disputed boundary."

While this suit was pending an attempt was made to settle the long controversy by an amicable adjustment of the whole line from the Connecticut corner to the ocean. Commissioners were appointed by both States in 1844 to ascertain and mark the true boundary from Pawtucket Falls (presumably near the present city of Pawtucket) south to Bullock Neck. In 1845 the same commissioners were authorized to ascertain the entire line from Burnt Swamp Corner to the Atlantic Ocean.

In 1846, the equity suit having been decided (4 Howard 591), they were authorized "to erect suitable monuments at the prominent angles of the line, from the Atlantic Ocean to the northwest corner of Rhode Island, and at such other points on the line as may subserve the public convenience." A majority of the commissioners agreed upon a line and erected monuments in 1847.

The report of the joint commission was dated Boston, January 13, 1848. The line so agreed upon as a boundary between Burnt Swamp Corner and the northwest corner of Rhode Island was a straight line, varying a little from the irregular jurisdictional line established by the decision of the Supreme Court, and is described in the report of the commissioners, as follows:

Begin at the northwest corner of Rhode Island, on Connecticut line, in latitude 42°00'29" north, and longitude 71°48'16" west of Green;

wich, thence easterly in a straight line 21.512 miles to Burnt Swamp Corner, in Wrentham, being in latitude $42^{\circ}01'08''$ and longitude $71^{\circ}23'13''$.

Upon this line, 27 monuments were placed exclusive of that at Burnt Swamp Corner.

The General Assembly of Rhode Island, in May 1847, ratified and established the line from the ocean to the Connecticut line, "to take effect and become binding whenever the said agreement and boundary line should be ratified by the State of Massachusetts." The legislature of Massachusetts did not ratify the agreement and boundary line but proposed another joint commission, which was approved by Rhode Island. The attempt made by these commissioners to settle the line having failed, Massachusetts commenced a bill in equity before the Supreme Court of the United States for an adjudication of the boundary line from Burnt Swamp Corner to the Atlantic Ocean.

In 1860 both States agreed upon a conventional line and asked that a decree of the U.S. Supreme Court should confirm the same. The prayer was granted, and the line was thus finally established by a decree rendered December 16, 1861.⁶²

The Supreme Court decision made no reference to the line from Burnt Swamp Corner to the Connecticut line. In 1865 the Legislature of Massachusetts took action in regard to this portion of the line, as follows:

Resolved, That the boundary line between the State of Rhode Island and the Commonwealth of Massachusetts, from the line of the State of Connecticut to Burnt Swamp Corner, begins at the north west corner of the State of Rhode Island on the Connecticut line, in latitude $42^{\circ}00'29''$ north, and longitude $74^{\circ}48'16''$ west of Greenwich, and runs in a straight line 21 and $\frac{1}{1000}$ miles to Burnt Swamp Corner, in Wrentham, being in latitude $42^{\circ}1'8''$ 60 and longitude $71^{\circ}23'13''$ 26. [See p. 69 for corrected position for this mark.]

This is the line agreed upon by commissioners and called the "line of 1848," which was ratified by Rhode Island when run but was rejected by Massachusetts.

As a result of the tardiness of Massachusetts in ratifying the line, Rhode Island rejected it on the ground that the then recent settlement of the eastern boundary by the decree of the Supreme Court had so changed the aspect of the controversy that she could not consent

to the adoption of the line of 1848 as her northern boundary. Thus the northern boundary of Rhode Island was left in the condition prescribed by the Supreme Court decision of 1846.

In June 1880, the Legislature of Rhode Island passed a resolution to remove the monuments of the "line of 1848" and erect monuments on the jurisdictional line. In 1881 the Legislature of Massachusetts took like action. This jurisdictional line has the same termini as the line of 1848 but is a very irregular line, in places running north of a direct line and elsewhere falling south of it, the extreme variations being 529.3 feet north and 129 feet south. It is described as follows:⁶³

Beginning at a monument of dressed granite, marked "Mass." on the north, "R.I." on the south, and "Con." on the west side, standing at the northwest corner of the State of Rhode Island, in latitude $42^{\circ}00'23.45''$, longitude $71^{\circ}48'18.07''$ west of Greenwich; thence running easterly in a straight line to a pile of stones on the westerly bank of Wallum pond at high-water mark; thence easterly in a straight line to the southwest corner of Uxbridge and the southeast corner of Douglas, to a monument of dressed stone, marked "D Nov. 9, 1829," on northwest face and "U" on east face, and "B" on south face; thence running easterly in a straight line to a point formed by the intersection of the easterly line of Harris Avenue, so called, with the southerly line of Gaskill Street near the bridge of Waterford, and about fifteen rods easterly of the easterly bank of the Blackstone River; thence running easterly in a straight line to a monument of split stone granite about five feet above ground, having five faces, marked on the west face "M," on the northeast face "R," and on the south face "C"; thence easterly in a straight line to the stone monument now standing on Wrentham Plain at Burnt Swamp Corner, . . . marked on two sides Mass. and on the other two sides R.I.

The following statement concerning the east boundary of Rhode Island was made by commissioners of 1897-98 for both States (Massachusetts Topog. Survey, 1900):

On March 1, 1862, a decree of the Supreme Court of the United States issued the previous year became effective, which changed the boundary line between the Commonwealth of Massachusetts and the State of Rhode Island. By this change the town of Pawtucket west of the Seven and Ten Mile rivers, a narrow strip of Seekonk between the middle of the above-named rivers and the line of highest water on the eastern banks, and the southwestern part of Seekonk, now East Providence, were annexed to Rhode Island. In exchange for territory in the vicinity of Fall River, The Legislature of Massachusetts anticipating this change, provided by chapter 187 of the acts of 1861 for the proper jurisdiction of the territory east of this new boundary, and the State of Rhode Island by a similar act, chapter 379 of the acts of 1861, provided for the jurisdiction of the new territory acquired west of this line.

On account of the imperfect marking of this line and the difficulty of defining the high-water lines of rivers and ponds, which formed the State boundary, it was decided in 1897 to redefine the line and to substitute for indefinite high-water boundaries a series of straight lines as near as may be to the line established by the decree of 1861, which could be readily and permanently marked.

The general court of that year authorized the topographical survey commission, representing Massachusetts, to act in conjunction with a commission representing Rhode Island, in locating, defining, and

⁶² A full discussion of the Massachusetts-Rhode Island boundary dispute, including reports of commissioners and legislative acts, may be found in Massachusetts H. Doc. 102 of 1861; Doc. 3 of 1869; Doc. 1230 of 1899, in Rhode Island Acts, May 1867, and in U.S. Supreme Court Rec. 3, December term of 1862.

⁶³ This is a clerical error. "Longitude $74^{\circ}48'18''$ " should read "longitude $71^{\circ}48'18''$."

⁶⁴ Massachusetts Laws for 1893, chap. 154, approved Apr. 30, 1893 Rhode Island act approved Mar. 22, 1903.

marking the State boundary line, from "Burnt Swamp Corner" southerly to the sea.

A full report of the doings of these commissions was made in May 1899, and the general courts of both States promptly ratified their work by the passage of acts which contain a full description of the line.¹⁹

The 1898 survey of the east boundary of Rhode Island was commenced at Burnt Swamp Corner, marked by a granite monument inscribed "Mass.-R. I. 1861-1883; 1898," in lat 42°01'08.35" and long 71°22'54.51". The line thence runs S. 2°40' W. 8.65 miles, thence east and south by straight-line courses of irregular length to a point where it intersects the line of high water of the Atlantic Ocean, in lat 41°29'50.87", long 71°07'15.62", about 45.789 miles from the point of beginning. The termini of all the straight lines are marked by the old monuments where recovered or by new granite monuments 12 by 12 inches by 9½ feet, suitably lettered and set 5½ feet in the ground.

In 1713, commissioners from the Province of Massachusetts Bay and the Colony of Connecticut adopted a line between Massachusetts and Connecticut. By this line the frontier towns of Woodstock, Suffield, Enfield, and Somers were given to Massachusetts. In 1749 the Legislature of Connecticut passed a resolution stating that inasmuch as the line had not been approved by the King and the two colonies had no legal right to transfer territory without the confirmation of the Crown, the contract was void, and these towns were again taken under the jurisdiction of Connecticut. Massachusetts appealed to the King, and the claims of Connecticut were fully established. (Hollister, 1855, v. 2, p. 463-464.)

In 1791 Massachusetts and Connecticut appointed commissioners to establish the boundary between them, but the commissioners were unable to agree.

In 1803 commissioners were appointed to complete the line west of the Connecticut River, a compromise having been made concerning the line between the town of Southwick and the towns of Suffield and Granby (the cause of the disagreement of the former commissioners). The agreement made was as follows:²¹

That the line should begin from a station 8 rods south of the southwest corner of West Springfield, and thence run west to the large ponds, and thence southerly by these ponds to the ancient south line of Westfield, and from thence on said south line to the ancient southwest corner of Westfield; and from thence northerly in the ancient west line of Westfield to the station in said west line made by commissioners in the year 1714, and from thence to the southwest corner of Granville.

¹⁹ Massachusetts act of June 3, 1899, chap. 476; Rhode Island act of May 26, 1899, chap. 538; Massachusetts H. Doc. 1232, May 23, 1899, contains reports of the commissioners and of the engineer; also contains a plat of the line and descriptions of the monuments.

²¹ Massachusetts Special Laws, 1805, v. 3, p. 234. For the full report of the commissioners, see Connecticut Private Laws, 1837, v. 2, p. 1540-1544.

The reason for this peculiar deviation from a straight boundary, known as the "Southwick jog," is that, in adjusting errors in the boundary line between Connecticut and Massachusetts as previously run by compass, a long, narrow strip of land was given to Connecticut; the Southwick jog ceded to Massachusetts was intended to be an equivalent area (Bowen, 1882, p. 65).

In 1826 the line between Massachusetts and Connecticut east of the Connecticut River was run by commissioners appointed from each State, and 49 stone monuments were erected, marked "M" on the north side and "C" on the south. (Connecticut private laws, 1837, v. 2, p. 1544-1550.)

The same commissioners surveyed and marked the line from the northeast corner of Connecticut to the northwest corner of Rhode Island, reporting as follows:

Beginning at the monument erected at the northeast corner of said State of Connecticut and running in a direct line to the ancient heap of stones on the north side of the turnpike leading from Hartford to Boston, through Thompson and Douglass, where we erected a monument, and thence running in a direct line to the northwest corner of the State of Rhode Island.

The present boundary between Massachusetts and Connecticut was fixed by a joint commission authorized by legislative acts of both States in 1905. The line as surveyed and marked was approved by Massachusetts in 1908 (Massachusetts Acts of 1908, chap. 192), by Connecticut in 1913, and by the U.S. Congress October 3, 1914 (38 Stat. L. 727). Part of it is thus described:

Beginning at a granite monument at the northeast corner of the State of Rhode Island and marking the corner of Massachusetts, Rhode Island, and Connecticut, in latitude 42°00'29.150" and longitude 71°47'58.778"; [thence in a general northerly direction] to a granite monument at the northeast corner of the State of Connecticut, in latitude 42°01'24.807" and longitude 71°48'04.123".

From this corner, the boundary is approximately a straight line bearing 1° or 2° north of west to a point near the Connecticut River.

From a granite monument in lat 42°02'04.619", long 72°31'55.276", the line runs as follows:

South 81°56'34" west, 11,309 feet to a granite monument about 620 feet south of Allen Street in Longmeadow, in latitude 42°01'48".933 and longitude 72°34'23".544; thence south 51°56'28" west, 3,238 feet to a granite monument 450 feet east of the main road from Thompsonville to Springfield, in latitude 42°01'29".212 and longitude 72°34'57".422; thence north 88°35'49" west, 5,834 feet to a granite monument on the top of the bank, about 175 feet east of the easterly shore of the Connecticut River, in latitude 42°01'30".616 and longitude 72°36'14".856; thence in the same direction, 950 feet to the middle

²² The 1827 N.A.D. positions of these two monuments are lat 42°00'38.25" N., long 71°47'58.97" W. and lat 42°01'24.32" N., long 71°48'04.22" W.

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of said river; thence northerly along a line midway between the banks thereof, about 2,075 feet; thence north $87^{\circ}18'55''$ west, 1,260 feet to a granite monument standing on the bank about 225 feet west of the westerly shore of the river. In latitude $42^{\circ}01'51''$, 983 and longitude $72^{\circ}36'44''$, 913; thence in the same direction, 7,661 feet to a granite monument about 875 feet west of North Street, or Suffield Street, the middle road from Suffield to Springfield, in latitude $42^{\circ}01'55''$, 516 and longitude $72^{\circ}38'26''$, 318; thence north $82^{\circ}39'40''$ west, 8,966 feet to a granite monument on the easterly side of Halladay Avenue, or Front Street, the road from Suffield to Feeding Hills, in latitude $42^{\circ}02'06''$, 813 and longitude $72^{\circ}40'24''$, 149; thence north $84^{\circ}51'12''$ west, 7,202 feet to a granite monument on the easterly side of West Street, the road from West Suffield to Westfield, in latitude $42^{\circ}02'13''$, 185 and longitude $72^{\circ}41'59''$, 207; thence south $89^{\circ}46'25''$ west, 4,137 feet to a granite monument at the corner of Apawam and Southwick in Massachusetts and Suffield in Connecticut, in latitude $42^{\circ}02'13''$, 019 and longitude $72^{\circ}42'54''$, 032; thence south $0^{\circ}48'01''$ east, 132 feet to a granite monument, in latitude $42^{\circ}02'11''$, 716 and longitude $72^{\circ}42'54''$, 008; thence south $89^{\circ}38'09''$ west, 11,231 feet to a granite monument on the easterly shore of Compadum Lake, in latitude $42^{\circ}02'10''$, 984 and longitude $72^{\circ}45'22''$, 830; thence in the same direction, 145 feet to the shore of the lake as it would be with the surface of the water at the elevation it was in 1803; thence southerly, by the easterly shore of the lake as it would be with the surface of the water at the aforesaid elevation to a point opposite a granite monument near the shore at the southerly end of the lake; thence south $42^{\circ}26'29''$ west, about 25 feet to said monument, in latitude $42^{\circ}09'27''$, 957 and longitude $72^{\circ}46'00''$, 167; thence in the same direction, 1,532 feet to a granite monument at the southeasterly corner of the "Southwick jog," in latitude $42^{\circ}00'11''$, 881 and longitude $72^{\circ}46'01''$, 841; thence south $81^{\circ}33'28''$ west, 13,827 feet to a granite monument at the southwesterly corner of the "Southwick jog," in latitude $41^{\circ}59'51''$, 787 and longitude $72^{\circ}49'02''$, 976; thence north $3^{\circ}33'56''$ east, 14,261 feet to a granite monument known as the "Crane Monument," in latitude $42^{\circ}02'12''$, 399 and longitude $72^{\circ}48'51''$, 223.

From this corner the line runs on a general westerly course, bearing about 1° north of west, to

a large rock, marked 1803 on its southerly side, in Sage's Ravine, in latitude $42^{\circ}03'02.214''$ and longitude $73^{\circ}26'00.030''$; thence south $88^{\circ}31'58''$ west 14,787 feet to a granite monument at the northwesterly corner of the State of Connecticut and marking the corner of Massachusetts, New York, and Connecticut, in latitude $42^{\circ}02'58.427''$ and longitude $73^{\circ}29'15.959''$.¹³

The boundary between Massachusetts and New York was from an early period a subject of controversy, New York claiming to the west bank of the Connecticut River, under the charters of 1664 and 1674 to the Duke of York, and Massachusetts claiming to the "South Sea," under her old charters. After many fruitless attempts at a settlement, the western boundary of

Massachusetts was fixed in 1773 where it now meets New York territory. The Revolution soon following, the line was not run. In 1785 Congress appointed three commissioners to run the line, who performed that duty in 1787. The line was as follows (New York Rev. Stat., 1875, p. 122):

Beginning at a monument erected in 1731 by commissioners from Connecticut and New York, distant from the Hudson River 20 miles, and running north $15^{\circ}12'9''$ east 50 miles 41 chains and 79 links, to a red or black oak tree marked by said commissioners, which said line was run as the magnetic needle pointed in 1787.

The claims of Massachusetts to western lands within the territory of the State of New York were finally settled December 16, 1786, by a joint commission of the two States. By this agreement Massachusetts surrendered the sovereignty of the whole disputed territory to New York and received in return the right of soil and preemption right of Indian purchase west of the meridian passing through the eighty-second milestone of the Pennsylvania line (see fig. 18), except certain reservations upon the Niagara River. The title to a tract known as "The Boston Ten Towns," lying east of this meridian and previously granted to New York by Massachusetts, was confirmed. (See Hough's New York Gazette, 1872, p. 25, 26.)

On April 19, 1785, Massachusetts executed a deed transferring to the United States all title of Massachusetts to territory west of the present western boundary of New York.

In 1820 Maine, previously a part of Massachusetts, was admitted into the Union as an independent State.

In 1853 an area of about 1,010 acres (see insert, fig. 18) in the southwest corner of Massachusetts, known as Boston Corners,¹⁴ was ceded to New York, and in 1855 the cession was confirmed by Congress (10 Stat. L. 602).

The present boundary between Massachusetts and New York was thus described from resurveys by a joint commission in 1899:

Beginning at bound 1, a granite monument set in ledge on the side of a wooded mountain peak six hundred and nine feet east of Ryan Bush Road, in latitude $42^{\circ}02'58.427''$ north of the Equator, and longitude $73^{\circ}29'15.959''$ west from Greenwich, and marking the northwest corner of Connecticut, a corner of the Commonwealth of Massachusetts, and a corner of the State of New York; thence on an azimuth of $90^{\circ}43'49''$, twenty-six hundred and twenty-four feet to bound 3, a granite monument set in ledge on the steep westerly slope of a wooded mountain, in latitude $42^{\circ}02'58.756''$ and longitude $73^{\circ}29'50.737''$; at the southwest corner of Massachusetts, also in the eastern line of New York, and marking a corner of the town of Mount Washington, in Massachusetts, and Ancram and Northeast, in New York; thence on an azimuth of $167^{\circ}08'15''$, thirteen thousand six hundred and forty-nine feet to bound 9, a granite monument set in ledge on the westerly wooded slope of Alandar Mountain about a quarter mile west of its summit, in latitude $42^{\circ}05'10.205''$ and longitude $73^{\circ}30'31.031''$; at the corner of Mount Washington, in Massachusetts, and Copake, in New York; thence on an azimuth of

¹³For the full notes of this boundary, see Massachusetts Acts of 1906, chap. 192, and Connecticut Acts of 1913, see also 38 Stat. L. 722. For a description of each of the 214 marks on this line, see Massachusetts Board of Harbor and Land Commissioners (1908, p. 106-117).

¹⁴See U. S. Geol. Survey topographic map of Copake quadrangle, N. Y. Mass.

195°12'22", two hundred forty-nine thousand two hundred and forty-six feet, by the towns of Mount Washington, Egremont, Alford, West Stockbridge, Richmond, Hancock, and Williamstown, in Massachusetts, and Copake, Hillsdale, Austerlitz, Canaan, New Lebanon, Stephentown, Berlin, and Petersburg, in New York, to bound 112, a granite monument set in ledge and earth on an open easterly slope about seventy-five feet west of a private roadway, in latitude 42°44'45.201" and longitude 73°15'54.904" at the northwest corner of Massachusetts, also in the east line of New York and in the south line of Vermont, and marking a corner in the boundaries of the towns of Williamstown, in Massachusetts, Petersburg, in New York, and Pownal, in Vermont.

The term "azimuth" as used in this description is the angle which a line makes at its point of beginning with the true meridian, reckoning from the south around by the west.

This location of the line was approved by Massachusetts May 8, 1901, and by New York June 9, 1910 (Massachusetts Acts of 1901, chap. 374; New York Acts of 1910, chap. 447).

Massachusetts is one of the very few States that has had her boundary lines adequately marked and by frequent inspection maintains the marks in good condition. In addition to the marking of her exterior lines the State has also had comprehensive surveys made of interior township boundaries. The lines and corners are controlled by an accurate system of triangulation; therefore if any number of marks were destroyed the exact positions for new ones to replace them could be readily ascertained from the triangulation data. The results of these surveys are published by the State Harbor and Land Commission in a series of folios, which give plats of the lines, positions of triangulation stations, descriptions of boundary marks, extracts from laws by which the lines were fixed, and some historical matter.

RHODE ISLAND⁷⁵

The present State of Rhode Island was settled by Roger Williams and other immigrants, who left Massachusetts Bay and established themselves at Providence in 1636.

In 1643 a patent was granted for the Providence Plantations, from which the following are extracts (Thorpe, 1909, v. 6, p. 3210):

And whereas there is a Tract of Land in the Continent of America aforesaid, called by the Name of Narragansett Bay, bordering Northward and Northeast on the Patent of the Massachusetts, East and Southwest on Plymouth Patent, South on the Ocean, and on the West and Northwest by the Indians called Nahiganneucks, alias Narragansetts: the whole Tract extending about twenty-five English Miles unto the Pequett River and County.

And whereas divers well affected and industrious English Inhabitants, of the Towns of Providence, Portsmouth, and Newport, in the tract aforesaid, . . . have represented their Desire. . . . Do, . . . give, grant, and confirm to the aforesaid Inhabitants of the Towns of Providence, Portsmouth, and Newport a free and absolute Charter of Incorporation, to be known by the Name of the Incorporation of Providence Plantations, in the Narragansett Bay, in New England. . . .

⁷⁵ The legal name for this State is "The State of Rhode Island and Providence Plantations."

In 1663 Charles II granted a charter to the governor and company of the colony of Rhode Island and Providence Plantations, of which the following is an extract (Thorpe, 1909, p. 3220):

. . . all that parte of our dominions in New-England, in America, contayning the Nahantuck and Nanhigansett Bay, and countreys and partes adjacent, bounded on the west, or westerly, to the middle or channel of a river there, commonly called and known by the name of Pawcatuck, alias Pawcatuck river and soe along the sayd river, as the greater or middle streame thereof reacheth or lyes vpp into north countrey, northward, unto the head thereof, and from thence, by a straight lynes drawn due north vntill it meets with the south lynes of the Massachusetts Colloony; and on the north, or northerly, by the aforesayd south or southerly lynes of the Massachusetts Colloony or Plantation, and extending towards the east, or eastwardly, three English miles to the east and northeast of the most eastern and northeastern parts of the aforesayd Narragansett Bay, as the sayd bay lyeth or extendeth itself from the ocean on the south or southwardly, unto the mouth of the river which runneth towards the towne of Providence, and from thence along the eastwardly side or banke of the sayd river (fisher called by the name of Secuncuck river), vnto the Halls called Patuckett Halls, being the most westwardly lynes of Plymouth Colloony, and soe from the sayd Halls, in a straight lynes, due north, vntill it meets with the aforesayd lynes of the Massachusetts Colloony; and bounded on the south by the ocean; and in particular, the lands belonging to the townes of Providence, Pawtuxet, Warwick, Misquamack, alias Pawcatuck, and the rest vpon the maine land in the tract aforesayd, together with Rhode Island, Blocke Island, and all the rest of the islands and banks in the Narragansett Bay and bordering vpon the coast of the tracts aforesaid (Fisher's Island only excepted), . . .

This charter was in force until 1843, when the constitution adopted in 1842 became effective.

For a history of the northern and eastern boundaries, see Massachusetts, pages 66-69.

In 1703 substantially the present western boundary was adopted by an agreement made between the commissioners from the two colonies of Rhode Island and Connecticut, namely, "A straight line from the mouth of Ashawoga River to the southwest corner of the Warwick purchase, and thence a straight north line to Massachusetts." This line was actually run by Rhode Island and is still known as the Dexter and Hopkins line, but Connecticut would not accept the line as thus marked. Rhode Island appealed to the King, and the agreement of 1703 was confirmed in 1726. In September 1728, commissioners from the two colonies met and ran the line.⁷⁶

The Connecticut-Rhode Island boundary line was established by the 1840 Joint Commission for that section of the line north of the mouth of the Ashaway River

⁷⁶ For agreements of 1703 and 1728 and decisions of English council, see Rhode Island Hist. Soc. (1835, v. 3, p. 204-213).

and by the 1888 Joint Commission for that section of the line south of the mouth of the Ashaway River.

Previous to this date the latter section of the line had only been defined as "the middle channel of the Pawcatuck River." The commissioners interpreted this description as the thread of the stream rather than the middle of the navigable channel. A survey was made of the river, and a series of straight lines approximating the thread of the stream was established with all angle points tied by coordinates to the government triangulation net. Reference points were set at infrequent intervals to tie this line to the ground.

The following description of the line is taken from Rhode Island Acts and Resolves, January, 1846, p. 12:

Beginning at a rock near the mouth of Ashaway River [now called Ashaway], where it empties into Pawcatuck River, and from said rock a straight course northerly to an ancient stone heap at the southeast corner of the town of Voluntown, and from said rock southerly in the same course with the aforesaid line, until it strikes Pawcatuck River. From the southeast corner of Voluntown a straight line to a stone heap at the southwest corner of West Greenwich; from thence a straight line to the southwest corner of the ancient town of Warwick, and which is now a corner of the towns of Coventry and West Greenwich; from thence a straight line to the northwest corner of the town of Coventry; thence a straight line to the northeast corner of Sterling; thence a straight line to the southwest corner of Burrillville, and thence a straight line to a stone heap upon a hill in the present jurisdictional line between the States of Massachusetts and Rhode Island, and at all of said corners, excepting said Warwick corner, we have erected monuments of stone, marked R. I. and C., and have also placed similar monuments on all the principal roads crossing the line, and at other suitable places.

And we have caused the ancient monument which was erected at the Warwick corner in November, 1742, to be reset; and a large heap of stones to be made around it. Said monument is marked with the letter C. on one side, and on the other RHODE ISLAND and the traces of other letters and figures. " " " [Rhode Island Acts and Resolves, January, 1846, p. 12, 13, 14].

In 1935 negotiations on a resurvey of this State line were initiated, and during the years 1937, 1938, and 1939 the Connecticut Geodetic Survey ran a triangulation net along the line and completed strip maps of the entire line on which all reputed monuments were located. The Connecticut and Rhode Island State Line Agents submitted a joint report on March 7, 1941. With the onset of World War II, all activity was terminated on the State lines, and no action was taken on this report (Connecticut Agent, 1943).

CONNECTICUT⁷⁷

In 1630 the Plymouth Council made a grant of Connecticut to Robert, Earl of Warwick, its president.⁷⁸ This grant was confirmed by King Charles in 1631, and on March 19 of that year the earl conveyed his title to Lord Say and Seal, Lord Brooke, Sir Richard Saltonstall, and others, associated under the name of The Plymouth Company (Dwight, 1840, p. 19).

A charter was granted by Charles II to Connecticut in 1662, of which the following is an extract (Thorpe, 1909, v. 1, p. 535):

We, . . . do give, grant and confirm unto the said Governor and Company, and their Successors, all that Part of Our Dominions in New England in America, bounded on the east by Narragansett River, commonly called Narragansett Bay, where the said River falleth into the sea; and on the North by the Line of the Massachusetts plantation; and on the South by the Sea; and in Longitude as the Line of the Massachusetts Colony, running from East to West, that is to say, from the said Narragansett Bay, on the East, to the South Sea on the West part, with the Islands thereunto adjoining.

Prior to this time the two colonies of Connecticut and New Haven had continued separate, but they were united under this charter, which was accepted by them April 20, 1665 (Thorpe, 1909, p. 529). The Duke of York having been granted a charter in 1664, by which the lands west of the Connecticut River were embraced in his jurisdiction, the question of boundary immediately arose. About this time Col. Richard Nichols, George Cartwright, Sir Robert Carr, and Samuel Maverick had been appointed commissioners by the King and clothed with extraordinary powers to determine all controversies in the colonies. The matter was referred to them, and, after a full hearing, they determined that the southern boundary of Connecticut was the sea (Long Island Sound) and its western boundary the Mamaroneck River and a line drawn north-northwest from the head of salt water in that stream to Massachusetts. The territory south and west of these lines was declared to belong to the Duke of York. It was supposed that this west boundary would run about 20 miles east of the Hudson River, but it was discovered later by surveyors from Connecticut that it actually intersected the Hudson near the present site of Tarrytown.

In 1674 the Duke of York received a new charter in substantially the same terms as that of 1664. New controversies concerning jurisdiction led to a new agreement, dated November 28, 1683, between the governors of New York and Connecticut, which fixed the boundary substantially as it now exists between the two States

⁷⁷ For an excellent historical description of the boundaries of Connecticut, see Bowen (1882).

⁷⁸ For a historical description of this and other royal grants of the Connecticut area and of lands now in Pennsylvania and Ohio formerly claimed by Connecticut, see Western Reserve Univ. (1923, p. 37-57).

and was sanctioned by the King. This agreement is as follows: ¹⁹

It is agreed that the bounds meares or dividend between his Roy^{ty} High^{ty} Territory in America and the Colony of Connecticut forever hereafter shall begin at a certain Brook or River Called Byram Brooke or River which River is between the Towns of Rye & Greenwich that is to say at the mouth of the said Brooke where it falleth into the Sound at a Point Called Lyon's Point which is the Eastward Point of Byram River, and from the said Point to goe as the said River Runeth, to the place where the Common Road or Wading place over the said River is and from the said Road or Wading place to goe North North west into the Country soe far as will be Eight English miles from the aforesaid Lyons Point, and that a Line of twelve Miles being measured from the said Lyons Point According to the Line or Generall Course of the Sound Eastward where the said twelve miles Endeth Another line shall be Runn from the Sound Eight miles into the Country North North West and alsoe that a fourth line be Runn that is to say from the North most end of the line first mencioned unto the Northmost end of the Eight mile line being the third mencioned line which fourth line with the first mencioned Line shall be the bounds where they shall fall to runn. And that from the Eastward End of the fourth mencioned Line (which is to be twelve miles in Length) A Line Parallel to Hudson's River in every place twenty miles distant from Hudson's River shall be the bounds there between the said Territory or Province of New York, and the said Colony of Connecticut soe far as Connecticut Doth Extend Northward that is to the South line of the Massachusetts Colony.

Only it is Provided that in Case the Line from Byrams Brooke Mouth North North West Eight Miles and the line that is thence to runn twelve miles to the end of the third foremencioned line of Eight Miles Doe Diminish or take away any Land within twenty miles of Hudsons River that then soe much as is in Land Diminished of twenty miles from Hudsons River thereby shall be added out of Connecticut bounds unto the Line aforesomencioned & Parallel to Hudsons River and Twenty miles Distant from it the addition to be made the whole Length of the said Parallel line and in such breadth as will make up Quantity for Quantity what shall be diminished as aforesaid.

A survey of the southwestern part of the boundary was made in 1684 and ratified by both parties. It was then decided that in accordance with the agreement a tract of land estimated at 61,440 acres should be permanently released to Connecticut by New York, in exchange for which New York should receive an equivalent area in a tract of uniform width between the Sound tract and the south line of Massachusetts, but for various reasons the survey of the equivalent lands was not made at that time.

This settlement of the boundary dispute was not satisfactory to the settlers in the tract added to New York who for the next 40 years endeavored to have the line moved west. Four sets of commissioners appointed successively for this purpose were unable to come to an agreement. A fifth set, appointed in 1725, entered into articles of agreement settling the manner of the survey, but they ran only the line bounding the tract

¹⁹ Report of the commissioners appointed in 1856 to ascertain the boundary between the States of New York and Connecticut, transmitted to the Legislature of New York Apr. 10, 1857. Albany: includes map and historical data.

on Long Island Sound. For some cause, action was then suspended until 1731, when the commissioners of 1725 surveyed and set off the oblong or equivalent territory given to New York, defining and marking its boundary, which was to remain forever the dividing line between the respective colonies. The line ran substantially as at present (New York Stat., 1829, p. 61-65; New York Rev. Stat., 1882, v. 1, p. 127-128) and is as follows:

Beginning at Lyon's Point, in the mouth of a brook or river called Byram river, where it falls into Long Island sound, and running thence up along said river to a rock at the ancient road or wading place in said river, which rock bears north 12°45' east, 550 rods from said point; then north 23°45' west, 2292 rods; then east-northeast, 13 miles and 54 rods, which lines were established in the year 1725, by Francis Harrison, Cadwallader Colden, and Isaac Hicks, commissioners on the part of the then province of New York, and Jonathan Law, Samuel Eells, Roger Wolcott, John Copp, and Edmund Lewis, commissioners on the part of the then colony of Connecticut, and were run as the magnetic needle then pointed; then along an east-northeast continuation of the last-mentioned course, 134 miles, and 21 rods to a monument erected in the year 1731 by Cadwallader Colden, Gilbert Willett, Vincent Matthews, and Jacobus Bruyn, junior, commissioners on the part of said province, and Samuel Eells, Roger Wolcott, and Edmund Lewis, commissioners on the part of said colony; which said monument is at the southeast corner of a tract known and distinguished as the oblong or equivalent lands; then north 24°30' west, until intersected by a line run by said last-mentioned commissioners, on a course south 12°30' west, from a monument erected by them in the south bounds of Massachusetts, which monument stands in a valley in the Tughranick mountains, 121 rods eastward from a heap of stones. In said bounds on the top or ridge of the most westerly of said mountains; then north 12°30' east, from a monument erected by said last-mentioned commissioners said place of intersection, and standing on the north side of a hill, southeasterly from the easternmost end of the long pond, along the aforesaid line to the aforesaid monument erected in the south bounds of Massachusetts, being the northeast corner of the oblong: . . .

For more than a century no further controversy arose, but after 1850 questions of jurisdiction were raised, and in 1855 Connecticut made a proposition for a new survey. Several sets of commissioners were appointed (see footnote 79); but no agreement being reached, finally, in 1860, pursuant to an act of the Legislature of New York, the line was run by the New York commissioners, Connecticut not being represented.

The first section of the act of the New York Legislature is as follows:

1. The commissioners appointed by the governor to ascertain the boundary line between the States of New York and Connecticut are hereby empowered and directed to survey and mark, with suitable

monuments, the said line between the two States as fixed by the survey of 1731.*

Twenty years later other commissioners representing the two States agreed to accept the survey of 1860, and their report (New York Rev. Stat., 1882, v. 1, p. 136), which was ratified the same year, was as follows:

We agree that the boundary on the land constituting the western boundary of Connecticut and the eastern boundary of New York shall be and is as the same was defined by monuments erected by commissioners appointed by the State of New York, and completed in the year 1860, the said boundary line extending from Byram Point, formerly called Lyon's Point, on the south, to the line of the State of Massachusetts on the north. And we further agree that the boundary on the sound shall be and is as follows: Beginning at a point in the center of the channel, about 600 feet south of the extreme rocks of Byram Point, marked No. 0, on appended United States coast survey chart; thence running in a true southeast course 3¼ statute miles; thence in a straight line (the arc of a great circle) northeasterly (82.27 miles) to a point 4 statute miles due south of New London light-house; thence northeasterly to a point marked number one, on the annexed United States coast survey chart of Fisher's Island sound, which point is on the longitude east three-quarters north, sailing course down on said map, and is about 1,000 feet northerly from the Hemlock or North Dumpling light-house; thence following said east three-fourths north sailing course as laid down on said map easterly to a point marked number two on said map; thence southeasterly to a point marked No. 3 on said map; so far as said States are coterminal.

This agreement was confirmed by the Congress of the United States February 26, 1881 (21 Stat. L. 351).

The line of 1860 was so poorly marked that the Legislature of New York in 1887 and the Legislature of Connecticut in 1902 ordered a resurvey, which was made in 1909-10. In that survey the line of 1860 was followed as closely as possible. Where old boundary stones of suitable size were found, they were reset in concrete bases, and about 100 new ones were added, made of cut granite 12 by 12 inches by 9 or 10 feet, set in concrete bases 4 by 4 feet in section and 5 or 6 feet deep. (See p. 75.) This survey was approved by the State legislatures in 1913 and formally ratified by congressional act of January 10, 1925 (43 Stat. L. 731) in which the description of the boundary is given including distances and bearings of the lines through Long Island Sound.

For the history and present location of the eastern boundary of Connecticut, see Massachusetts, page 67, and Rhode Island, page 72. For the northern boundary, see Massachusetts, page 67.

*See report (Feb. 8, 1861) of the commissioners appointed to ascertain the boundary between the States of New York and Connecticut, in which will be found a complete account of this controversy.

Under the charter of 1662 Connecticut claimed a large western territory. Subsequent to the Revolution, however, in 1786, 1792, 1795, and 1800, she relinquished all title to any land west of her present boundary. (See p. 49.)

NEW YORK⁸¹

The territory included in the present State of New York is part of that claimed by both France and England by right of discovery. It was included in the territory of Acadia, for which a charter was given by Henry IV of France in 1603, and was included also within the limits of the Virginia colony, chartered by James I of England in 1606, which embraced all that part of America between 34° and 45° north latitude. Much of the territory west of the Hudson River was held by the French and Indians and was a source of dispute for many years. The Indian treaty of 1684 gave England nominal control, but the French were not finally disposed of their claim until nearly a hundred years later. The Dutch in 1613 established trading posts on the Hudson and claimed jurisdiction over the territory between the Connecticut and Delaware Rivers, which they called New Netherlands. The government was vested in the United New Netherland Co., chartered in 1616, and later in the Dutch West India Co., chartered in 1621.

In 1664 King Charles II of England granted to his brother, the Duke of York, a large territory in America, which included, with other lands, all that tract lying between the west side of the Connecticut River and the east side of the Delaware. The Duke of York had previously purchased, in 1663, the territory on the New England coast which had been awarded to the Earl of Stirling, and in 1664, with an armed fleet, he took possession of New Amsterdam, which was thenceforth called New York. This conquest was confirmed by the treaty of Breda in 1667.

The following is an extract from the grant of 1664 to the Duke of York (Thorpe, 1909, v. 3, p. 1637):

We have given James Duke of York all that part of the maine land of New England beginning at a certaine place called or knowne by the name of St. Croix next adjoining to New Scotland in America and from thence extending along the sea coast unto a certain place called Penauquinne or Pemaquid and so up the River thereof to the furiest head of ye same as it tendeth northwards and extending from thence to the River Kinebequi and so upwards by the shortest course to the River Canada northward and also all that Island or Islands commonly called by the severall name or names of Mattawacks or Long Island situate lying and being towards the west of

⁸¹The boundaries of New York are described in considerable detail in Report of the Regents of the University on the Boundaries of the State of New York (State) S Doc. 106, 1874, v. 1, 350 p., 1884, v. 2, 887 p. Volume 2 includes an index for both volumes and contains copies from unpublished manuscript relating to the boundaries and a vast amount of historical matter, copies of royal grants, copies from field notes, and reports of surveys.

Cape Codd and ye narrow Higansetts abutting upon the maine land between the two Rivers there called or knowne by the severall names of Connecticut and Hudsons River together also with the said river called Hudsons River and all the land from the west side of Connecticut to ye east side of Delaware Bay and also all those severall Islands called, or knowne by the names of Martin's Vineyard and Nantukes otherwise Nantucket.

The Dutch recaptured New York in July 1673 and held it until it was restored to the English by the treaty of Westminster, in February 1674. The Duke of York thereupon, to perfect his title, obtained a new grant in substantially the same terms as that of 1664, of which the following is an extract (New York [State] Univ., 1874, v. 1, p. 10):

All that part of the Mayne land of New England, beginning at a certaine Place called or knowne by the name of St. Croix next adjoining to New Scotland in America; and from thence extending along the Sea Coast into a certaine place called Pemaquid or Pemaquid, and soe up the River thereof to the furthest head of the same as itt tendeth Northwards and extending from the River of Kinebeque and so upwards by the shortest Course to he River Canada Northwards. And alsoe all that Island or Islands commonly called by the severall names of Matowacks or Long Island, Sciuate Iyving and being towards the West of Cape Codd, and the Nerro Higansetts, abutting upon the Mayne land between the two Rivers there called or knowne by the severall names of Conectcutie and Hudsons River, Together alsoe with the said River called Hudsons River, and all the Land from the west side of Conectcutie River to the East side of De la Ware Bay; and alsoe those severall Islands, called or knowne by the names of Martin-Vinyards and Nantukes, otherwise Nantucket.

By these grants to the Duke of York and the conquest of the Dutch possessions in America, it can be seen that New York originally had a claim to a much larger territory than is now included in its limits. The successive changes in area may be sketched as follows:

In 1664 the Duke of York sold the present State of New Jersey to Lord John Berkeley and Sir George Carteret.

In 1682 the Duke of York sold to William Penn his title to Delaware and the country on the west bank of the Delaware, which had been originally settled by the Swedes but had been conquered by the Dutch and by them surrendered to the Duke of York.

In 1686 Pemaquid and its dependencies were annexed to the New England government by a royal order of the former Duke of York, who had succeeded to the throne of England.

By the charter of 1691 to Massachusetts Bay, all claim to any part of Maine was extinguished, and the islands of Nantucket, Martha's Vineyard, and others adjacent (previously known as Duke's County, N.Y.) were annexed to Massachusetts Bay.

The territory west of the Connecticut River to a line within about 20 miles of Hudson River, now forming parts of Massachusetts and Connecticut, was, by agreements and concessions made at different times, surrendered to those colonies, respectively.

New York by the cession of 1781 to the United States relinquished all its claim to land west of the meridian through the west extremity of Lake Ontario between the north boundary of Pennsylvania and the 45th parallel, and the peace treaty of 1783 cut off the rest of the area claimed by it west of its present limits. (See fig. 18).

Massachusetts prior to 1786 claimed under its charters title to the soil, but not to the sovereignty, of a large area west of the Hudson River that was also claimed by New York; but by agreement of commissioners representing the two colonies, signed December 16, 1786, Massachusetts released to New York all land east of a meridian commencing on the Pennsylvania line 82 miles west of the Delaware River and extending northward to Lake Ontario, except an area of 3,600 square miles east of that line to be selected by Massachusetts between the rivers "Owego and Chenengo" (New York [State] Univ., 1874, v. 1, p. 219-220).

The next reduction in area was in 1791, when the consent of New York to the independence of Vermont was made effective by Congress. This left New York with substantially its present boundaries, the distances along which are as follows: (see New York State Engineer and Surveyor, 1911, p. 30).

The total length of the State boundary is 1,430 miles—Canadian line, 445 miles; Vermont line, 171 miles; Massachusetts line, 50½ miles; Connecticut line to Long Island Sound, 81 miles; along the ocean around Long Island to the New Jersey shore, 246 miles; New Jersey line, 92½ miles; Pennsylvania line, 344 miles to the beginning of the Canadian line in the middle of Lake Erie. The boundaries are fixed by accepted agreements and are marked by natural watercourses or by monuments.

For the history and settlement of the eastern boundary of New York, see Vermont, pages 64, 65; Massachusetts, page 70; and Connecticut, pages 73, 74.

A bill passed by the Legislature of New York, approved March 29, 1922, provided for the resurvey of a part of the State boundary said to be in dispute, extending from the northwest corner of Connecticut about 12 miles southward.

The northern boundary was fixed by the treaty of peace in 1783 and by the commission under the sixth article of the treaty of Ghent. (See p. 12.) The 45th-parallel part of the boundary is an extension of the

Valentine and Collins line of 1772 (p. 64) from the middle of Lake Champlain to the St. Lawrence. From Lake Champlain westward the survey was commenced by Collins and Sauthier in 1773 and completed by Collins the following year (Mayo, 1923, p. 255-265). The boundary as thus marked is far from being a straight line (fig. 18). It is in places half a mile north of the 45th parallel, and that parallel is crossed by it in two places west of Rouses Point; but it was finally accepted and confirmed by the treaty of 1842 as part of the north boundary of the United States. (See p. 20 for reference to the St. Lawrence and lake parts of the boundary.)

The boundary between New York and New Jersey was plainly stated in the grant by the Duke of York to Berkeley and Carteret. (See p. 75.) In 1719 attempts were made to have the line run and marked, but nothing seems to have been done till 1769, when the King appointed commissioners, who fixed on substantially the present line. In 1772 this line was accepted by both colonies, and in 1773 it was confirmed by the King in council. Commissioners were appointed

to survey and mark the line, which was described as follows (New Jersey Stat., 1821, p. 29-34):

A direct and straight line from the fork or branch formed by the junction of the stream or waters called the Machackmack with the river Delaware or Fishkill, in the latitude of $41^{\circ}21'37''$, to a rock on the west side of the Hudson River, marked by the said surveyors, in the latitude of 41° —said rock was ordered to be marked with the following words and figures, viz: "Latitude 41° north;" and on the south side thereof, "New Jersey;" and on the north side thereof, "New York;" also to mark every tree that stood on the line with five notches and a blaze on the northwest and southeast sides thereof, and to put up stone monuments, at 1 mile distance from each other, along the said line, and to number such monuments with the number of miles; the same shall be from the before-mentioned marked rock on the west side of Hudson's River, and mark the words "New Jersey" on the south side and the words "New York" on the north side of every of the said monuments.

In 1833 commissioners were appointed by New York and New Jersey for the settlement of the territorial limits and jurisdiction of the two States. The commissioners reached an agreement, which was ratified in 1834 by each State and was confirmed by Congress by an act approved June 28, 1834, (4 Stat. L. 708; New York Rev. Stat., 1882, v. 1), providing as follows:

ARTICLE FIRST. The boundary line between the two states of New York and New Jersey, from a point in the middle of Hudson river, opposite the point on the west shore thereof, in the forty-first degree of north latitude, as heretofore ascertained and marked, to the main sea, shall be the middle of the said river, of the Bay of New York, of the waters between Staten Island and New Jersey, and of Raritan Bay, to the main sea; except as hereinafter otherwise particularly mentioned.

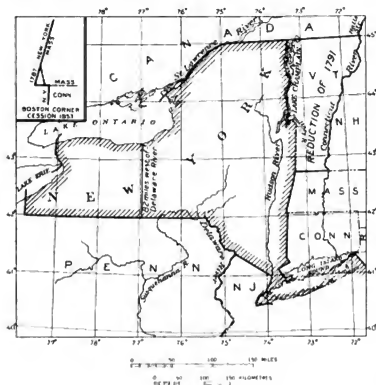


FIGURE 18.—Historical diagram of New York.

ARTICLE SECOND. The state of New York shall retain its present jurisdiction of and over Bedloe's and Ellis's islands; and shall also retain exclusive jurisdiction of and over the other islands lying in the waters above mentioned and now under the jurisdiction of that state.

ARTICLE THIRD. The State of New York shall have and enjoy exclusive jurisdiction of and over all the waters of the bay of New York; and of and over all the waters of Hudson river lying west of Manhattan Island and to the south of the mouth of Spuytenwyck creek; and of and over the lands covered by the said waters to the low water mark on the westerly or New Jersey side thereof, subject to the following rights of property and of jurisdiction of the state of New Jersey; that is to say:

1. The state of New Jersey shall have the exclusive right of property in and to the land under water lying west of the middle of the bay of New York, and west of the middle of that part of the Hudson river which lies between Manhattan Island and New Jersey. [248 U.S. 326.]

2. The state of New Jersey shall have the exclusive jurisdiction of and over the wharves, docks, and improvements, made and to be made on the shore of the said state; and of and over all vessels aground on said shore, or fastened to any such wharf or dock, except that the said vessels shall be subject to the quarantine or health laws and laws in relation to passengers, of the state of New York, which now exist or which may hereafter be passed.

3. The state of New Jersey shall have the exclusive right of regulating the fisheries on the westerly side of the middle of said waters. *Provided*, That the navigation be not obstructed or hindered.

ARTICLE FOURTH. The state of New York shall have exclusive jurisdiction of and over the waters of the Kill Van Kull between Staten Island and New Jersey to the westernmost end of Shooter's Island in respect to such quarantine laws, and laws relating to passengers as now exist or may hereafter be passed under the authority of that state, and for executing the same; and the said state shall also have exclusive jurisdiction for the like purposes of and over the waters of the sound from the westernmost end of Shooter's Island to Woodbridge creek as to all vessels bound to any port in the said state of New York.

ARTICLE FIFTH. The state of New Jersey shall have and enjoy exclusive jurisdiction of and over all the waters of the sound between Staten Island and New Jersey lying south of Woodbridge creek, and of and over all the waters of Raritan Bay lying westward of a line drawn from the light-house at Prince's Bay to the mouth of Mathavan creek; subject to the following rights of property and of jurisdiction of the state of New York; that is to say:

1. The state of New York shall have the exclusive right of property in and to the land under water lying between the middle of the said waters and Staten Island.

2. The state of New York shall have the exclusive jurisdiction of and over the wharves, docks, and improvements made and to be made on the shore of Staten Island, and of and over all vessels aground on said shore or fastened to any such wharf or dock; except that the said vessels shall be subject to the quarantine or health laws in relation to passengers of the state of New Jersey which now exist or which may hereafter be passed.

3. The state of New York shall have the exclusive right of regulating the fisheries between the shore of Staten Island and the middle of said waters: *Provided*, That the navigation of the said waters be not obstructed or hindered.

Bedloe's Island and Ellis Island, although on the New Jersey side of the boundary, are under the jurisdiction of the State of New York and are a part of Greater New York City.²²

In 1876 commissioners were appointed to relocate the land boundary between New York and New Jersey and either to replace monuments that had become dilapidated or destroyed or to erect new ones. The commissioners found slight discrepancies between some of the original marks and the published descriptions, thereof, and the legislature of each State ordered that the original monuments should be considered the true boundary. (See New York S. Doc. 17 of 1875 and New York S. Doc. 20 of 1882.)

In 1874 the New Jersey Geological Survey retraced the land boundary between New Jersey and New York. The report by the State geologist, published at New Brunswick in 1874, contains a plat showing the divergence between the line as run and marked in 1774 by compass and the true arc of a great circle between the two terminals. The greatest divergence is at Greenwood Lake (mile 26 from the Hudson River) and is 2,415 feet. Throughout its length the accepted boundary is south of the straight line and thus gives to New York about 10 square miles of territory that was originally intended to be a part of New Jersey.

After this survey New Jersey proposed that New York should consent to a relocation of the boundary on the arc of a circle, but New York failed to concur. Later the two States accepted the line as marked in 1774 as a valid boundary and appointed commissioners, who re-marked the entire line in 1882 with granite monuments placed at each highway and railroad crossing and at the end of each mile, measured from the bank of the Hudson (Laws of New York for 1880 and Laws of New Jersey for 1881).

In 1887 a joint commission of the two States was appointed to determine and mark the boundary through Raritan Bay. This commission came to an agreement, the terms of which are as follows:

First. From "Great Bed's light-house," in Raritan bay, north, twenty degrees sixteen minutes west, true, to a point in the middle of the waters of Arthur Kill, or Staten Island Sound, equidistant between the southwesterly corner of the dwelling house of David C. Butler, at Ward's Point, on Staten Island, in the State of New York, at the southeasterly corner of the brick building on the lands of Corlandt L. Parker, at the intersection of the westerly line of Water street with the northerly line of Lewis street, in Perth Amboy, in the State of New Jersey.

Second. From "Great Bed's light-house" south, sixty-four degrees and twenty-one minutes east, true (S. 64°21' E.), in line with the center of Waackaick or Wilson's beacon, in Monmouth County, New Jersey, to a point at the intersection of said line with a line connecting "Morgan No. 2" triangulation point, U.S. Coast and Geodetic Survey, in

²² See New York State Laws of 1909, chap. 59, sec. 7 and Greater New York charter, 1897, chap. 1, sec. 2.

Middlesex County, New Jersey, with the "Granite and Iron beacon," marked on the accompanying map as "Romer stone beacon," situated on the "Dry Romer shoal;" and thence on a line bearing north, seventy-seven degrees and nine minutes east, true (N. 77° 9' E.), connecting "Morgan No. 2" triangulation point, U.S. Coast and Geodetic Survey, in Middlesex County, New Jersey, with said "Romer stone beacon" (the line passing through said beacon and continuing in the same direction), to a point at its intersection with a line drawn between the "Hook beacon," on Sandy Hook, New Jersey, and the triangulation point of the U.S. Geodetic Survey, known as the Oriental Hotel, on Coney Island, New York; then southeasterly, at right angles with the last-mentioned line to the main sea.

Third, The monuments marks by which said boundary line shall be hereafter known and recognised are hereby declared to be as follows:

1. The "Great Beda light-house."
2. A permanent monument marked "State boundary line New York and New Jersey;" and to be placed at the intersection of the line drawn from the "Great Beda light-house" to "Waackack or Wilson's beacon," Monmouth County, New Jersey, and the line drawn from "Morgan No. 2" triangulation point, U.S. Coast and Geodetic Survey, in Middlesex County, New Jersey, to "Romer stone beacon."
3. Eight buoys or spindles, to be marked like the permanent monument above mentioned, and placed at suitable intervening points along the line from the said permanent monument to the "Romer stone beacon."
4. The "Romer stone beacon."

In 1774 commissions were appointed by New York and Pennsylvania to fix the "beginning of the 43d degree" of north latitude (the 42d parallel) on the Mohawk or western branch of the Delaware River, which is the northeast corner of Pennsylvania, and to proceed westward and fix the line between Pennsylvania and New York. These commissioners reported in December of the same year that they had fixed the northeast corner of Pennsylvania and marked it as follows (Pennsylvania Dept. Internal Affairs, 1887, p. 495):

"* * * In a small island marked B in the Draught planted a Stone with the Letters NEW-YORK, 1774 Cut on one side and on the Top LAT. 42° VAR 4'20". Thence due West on the West side of Delaware River, We collected a Heap of Stones at High Water mark and in the said West line 4 Perches distant, planted another Stone as at C with the Letters PENNSYLVANIA 1774 Cut on the South side and on Top LAT 42° Var. 4'20" and from thence due West 18 P. marked an Ash Tree. But the Rigour of the Season prevented us from proceeding further.

Nothing further seems to have been done until 1786-87, when commissioners were appointed to finish the work thus begun, and the lines were run and monuments erected. The line was ratified by Pennsylvania in 1789, but no action was taken by the New York Legislature until the adoption of the revised statutes in 1829. The line is described as follows (Pennsylvania

Stat. L., 1908, v. 13 p. 378-379, Harrisburg, Mitchell & Flanders; New York Rev. Stat., 1882, v. 1, p. 130, Albany, Banks & Bros.):

A meridian line drawn through the most westerly bent or inclination of Lake Ontario; then south along said meridian line to a monument in the beginning of the forty-third degree of north latitude [on the forty-second parallel], erected in the year 1787, by Abraham Hardenburgh and William W. Morris, commissioners on the part of this state, and Andrew Ellicott and Andrew Porter, commissioners on the part of the state of Pennsylvania, for the purpose of marking the termination of the line of jurisdiction between this state and the said state of Pennsylvania; then east along the line established and marked by said last mentioned commissioners to the nineteenth milestone in the same parallel of latitude, erected in the year 1786, by James Clinton and Simon DeWitt, commissioners on the part of this State, and Andrew Ellicott, commissioner on the part of Pennsylvania; which said nineteenth milestone stands on the western side of the south branch of the Tioga River; then east along the line established and marked by said last-mentioned commissioners, to a stone erected in the year 1774, on a small island in the Delaware river, by Samuel Holland and David Rittenhouse, commissioners on the part of the colonies of New York and Pennsylvania, for the purpose of marking the beginning of the forty-third degree of north latitude; then down along said Delaware river to a point opposite to the fork or branch formed by the junction of the stream called Mahackamack with the said Delaware river, in the latitude of 41°21'37" north; then in a straight line to the termination, on the east bank of the Delaware river of a line run in the year 1774, by William Wickham and Samuel Gale, commissioners on the part of the then colony of New York, and John Stevens and Walter Rutherford, commissioners on the part of the then colony of New Jersey.

The meridian line forming part of the west boundary of New York was surveyed and marked in 1790 by Andrew Ellicott. In order to fix the initial point for this line, Ellicott ran a traverse line from the west end of Lake Ontario along the lake shore to the Niagara River, up and across that river, thence southwest along the south shore of Lake Erie to the computed longitude of the starting point. The notes of this survey have been lost. (New York [State] Univ., 1874, v. 1, p. 324.) The total length of the meridian line from a stone post set on the shore of Lake Erie to the Pennsylvania north line was later found to be 98,525 feet. In 1869 a large granite monument was set at a point 440 feet south of the lake-shore mark. (See fig. 2C.)

Positions on 1927 N.A.D. for some of these monuments are given below. They fall south of the parallel of 42° latitude.

The initial monument, of granite, is 600 feet west of the center of the Delaware River, lat 41°59'58.26" N., long 75°21'43.07" W.

Boundary mark 6: 41°59'56.95", 75°28'39.79".

Boundary mark 54: 41°59'54.72".

Monument 221, 3.8 miles east of the southwest corner of New York, lat 41°59'55.90" N., long 79°41'12.84" W.

The New York-Pennsylvania boundary line was surveyed in whole or in part in 1877-79; between 1881 and 1885 all missing marks were replaced with granite posts. There are now 519 stone monuments on the 42d-

parallel line, 224 of which are milestones. There are 18 milestones and 32 other marks on the meridian boundary. The marks between milestones on these lines are mostly at county corners and highway crossings.⁴³ These boundaries as now located were confirmed by congressional act of August 19, 1890,⁴⁴ which contains a brief history of the lines.

In order that the transportation and terminal facilities in the area including New York City and the adjacent part of New Jersey might be systematically developed, the legislatures of the two States in 1921 created a Port of New York District, within which three commissioners from each State should constitute a Port of New York Authority for the preparation of plans for tunnels, bridges, and railways, which, when approved by the States, should be constructed under their supervision. This compact by the States was approved by Congress August 23, 1921 (42 Stat. 174), and the general plans prepared by the commissioners were approved by the State legislature and Congress in 1922 (42 Stat. 822). The Port of New York District is irregular in outline. It includes near its borders parts or all of Paterson, Summit, Plainfield, New Brunswick, and Sandy Hook, N.J., and Rockaway Beach, Jamaica, Rye, and White Plains, N.Y., and covers a total area of about 1,540 square miles.

NEW JERSEY

Although the original grant of 1606 from the English sovereign covered the territory forming the present State of New Jersey, the first grant that directly related to New Jersey was that given in 1664 to Lord John Berkeley and Sir George Carteret, by the Duke of York, two months before the setting out of his expedition to take possession of New York. The following extract from that grant defines the boundaries (Thorpe, 1909, v. 5, p. 2534):

" . . . all that tract of land adjacent to New England, and lying and being to the westward of Long Island and Manhatis Island, and bounded on the east part by the main sea and part by Hudson's river, and hath upon the west Delaware bay or river, and extended southward to the main ocean as far as Cape May, at the mouth of the Delaware bay, and to the northward as far as the northernmost branch of the said bay or river of Delaware, which is forty-one degrees and forty minutes of latitude," and crosseth over thence in a straight line to Hudson's river, in forty-one degree of latitude; which said tract of land is hereafter to be called by the names of New Caesarea or New Jersey.

⁴³ For a description of each mark, see Pennsylvania Dept. Internal Affairs 1899, p. 49A-134A1.

⁴⁴ 26 Stat. L. 229. For references to Pennsylvania-New York boundary surveys and marks, see Cary and Riorden, *Laws of Pennsylvania*, v. 3, p. 292, and Reports of the Regents of the University of the State of New York New York S. Doc. 108 for 1873 (pub. in 1874), Assembly Doc. 91 for 1879, Assembly Doc. 49 for 1870, Assembly Doc. 100 for 1880, S. Doc. 20 for 1882, S. Doc. 71 for 1886, 26 Stat. L. 230. The southwest corner of New York is described in New York S. Doc. 71, 1886, p. 239.

⁴⁵ This point, now called the Tri-State Rock, has since been found to be at lat 41°21'22.6" N. and long 74°41'40.7" W.

In March, 1673, Lord Berkeley sold his undivided moiety of New Jersey to John Fenwick, by whom, in the following year, it was again sold. On July 1, 1676, was executed the famous "Quintipartite deed" by which the eastern part was given to Sir George Carteret, to be called east New Jersey, and the western part to William Penn and 11 other proprietors, to be called west New Jersey. The dividing line between the two parts as described in the act of March 27, 1719, was a straight line from the northwest corner of the province, on the Delaware River, to the most southerly point of an "island of sand . . . known by the name of Little Egg Harbour."

Sir George Carteret, at his death in 1678, left his land to be sold. It was sold in 1682 to the 12 proprietors of west New Jersey, who admitted other partners. Confirmation grants were made to the proprietors of both provinces by the Duke of York and confirmed by the King, but between 1697 and 1701 the proprietors repeatedly made petitions to be allowed to surrender their right of government to the Crown. In 1702 the surrender was made and was accepted by Queen Anne, and the two parts were united and made the province of New Jersey. (Thorpe, 1909, p. 2585.)

For the history of the northern and eastern boundaries, see New York, pages 76, 77.

The grant from the Duke of York to Berkeley and Carteret defined the west boundary of New Jersey to be the Delaware River (see above).

The line between New Jersey and Delaware is thus described (Revised Statutes of Delaware, 1874, chap. 1, sec. 2):

Low water mark on the eastern side of the river Delaware, within the twelve-mile circle from New Castle; and the middle of the bay below said circle.

In 1876 the Legislature of New Jersey authorized the governor to commence a suit in the Supreme Court of the United States to settle the boundary between New Jersey and Delaware. New Jersey claimed jurisdiction and title to the middle of the Delaware River and Delaware Bay within the 12-mile circle, while Delaware claimed the area to the low-water mark on the east shore. The suit commenced under this act was "dismissed without prejudice" in April, 1917 (205 U.S. 550).

Meanwhile the questions of jurisdiction and ownership of the tract had been under discussion by commissioners representing the two States, who in 1905 entered into a compact providing for concurrent juris-

diction over the disputed area, but they could not agree on the proper location of the boundary line. This compact was ratified by the legislatures and approved by Congress by act of January 24, 1907.

Suit was again entered in the Supreme Court at its October term, 1929, in an attempt to obtain a final settlement of this long-standing controversy. New Jersey's bill of complaint and Delaware's answer contain considerable historical matter relating to the two States. The adverse claims to the area in question were reviewed at great length in Senate Executive Document 21, Thirtieth Congress, first session, published in 1848. Although the total area involved was only about 22 square miles, it included valuable oyster beds and was therefore of importance to New Jersey. The decision of the Court, handed down February 5, 1934, validated the claim of Delaware that the boundary is the low-water mark on the eastern shore of the river within the 12-mile circle. It further decreed that the boundary is the main channel of navigation below the circle. This decree granted the claim of New Jersey (291 U.S. 361).

Commissioners were appointed by New Jersey and Pennsylvania to settle the jurisdiction over the Delaware River and the islands within it, and their report (Revision of the Statutes of New Jersey, 1877, p. 1181-1182), ratified in 1783, is in part as follows:

First. It is declared that the river Delaware from the station point or northwest corner of New Jersey, northerly * to the place upon the said river where the circular boundary of the State of Delaware toucheth upon the same. In the whole length and breadth thereof, is and shall continue to be and remain a common highway, equally free and open for the use, benefit, and advantage of the said contracting parties, etc.

Secondly. That each State shall enjoy and exercise a concurrent jurisdiction, within and upon the water, and not upon the dry land between the shores of said river.

The rule for apportioning the islands was that they should be assigned to the State

to which such insulated dry land doth lie nearest, at the time of making and executing this agreement; and that all other islands within said river between the falls of Trenton and the State of Delaware, which are not hereinafter particularly enumerated, shall be hereafter deemed and considered as parts and parcels of the State, to which such island doth lie nearest at the date hereof: * * * islands hereafter formed * * * shall be classed and annexed * * * according to the same principal.

The islands between the falls of Trenton and the Delaware line were divided as follows: Biles Island,

near Trenton; Windmill Island, opposite Philadelphia; League Island, Mud or Fort Island, Hog Island, and Little Tinicum Island were assigned to Pennsylvania. To New Jersey were given Biddies or Newbolds, Burlington, Pettyes, Red Bank, Harmanus, Helms, Chester, and Shiverses Islands.

In 1786 other commissioners were appointed by New Jersey and Pennsylvania for more accurately determining and describing the islands in the Delaware from the northwest corner of New Jersey down to the falls of Trenton. Their report was ratified and confirmed by Pennsylvania and New Jersey in 1786. The New Jersey act of March 16, 1786 (Laws of New Jersey, ed. of 1821, p. 78-79), mentions 75 of the islands by name.

PENNSYLVANIA⁶⁷

The Swedish West India Co., chartered by the King of Sweden in 1625, established the first permanent settlement on the west bank of the Delaware, occupying a part of the territory now in Pennsylvania and Delaware; the Dutch had previously established trading posts there, which had been destroyed by the Indians. The Swedes acquired, by successive purchases from the Indian chiefs, all the land extending from Cape Henlopen to the great falls of the Delaware and called it New Sweden. In 1655 this territory was surrendered to the Dutch. (Hazard, 1850, p. 185.)

By the conquest of the New Netherlands, in 1664, the Duke of York seems to have claimed successfully the settlements on the west bank of the Delaware as part of his dominions.

In 1681 Charles II of England granted to William Penn the Province of Pennsylvania. The following extract from the charter defines the boundaries (Thorpe, 1909, v. 5, p. 3036):

all that Tract or Part of Land in America, with all the Islands therein conveyed, as the same is bounded on the East by Delaware River, from the twelve miles distance northwards of New Castle Towne unto the three and fortieth degree of Northern Latitude, if the said River doeth extend so farre Northwards; But if the said River shall not extend so farre Northward, then by the said River soe farre as it doth extend; and from the head of the said River the Eastern Bounds are to be determined by a Meridian Line, to be drawne from the head of the said River, unto the said three and fortieth Degree. The said Lands to extend westwards five degrees in longitude, to be computed from the said Eastern Bounds; and the said Lands to be bounded on the North by the beginning of the three and fortieth degree of Northern Latitude, and on the South by a Circle drawne at twelve miles distance from New Castle Northward and Westward unto the beginning of the fortieth degree of Northern Latitude, and thence by a straight Line Westward to the Limit of Longitude above mentioned.

The following explanation regarding the use of the word "beginning" in connection with degrees of latitude in this grant is given by Donaldson (1884, p. 46):

⁶⁷The full legal title for Pennsylvania is "the Commonwealth of Pennsylvania."

⁶⁸This is a mistake. The line runs south.

It should be observed that the geographers of that day considered degrees of latitude as zones taking designation from their northern parallels; hence the north boundary of Pennsylvania, designated as the beginning of the 43d degree, is really the 42d parallel. The south boundary, being the beginning of the 40th degree, was really the 39th parallel, a construction for which Penn earnestly contended in his dispute with Lord Baltimore in relation to the boundary between Pennsylvania and Maryland.

Cushing (1920, p. 33) says: "The idea of a parallel of latitude seems to be a band about the earth parallel to the Equator and 1° wide, with the 'beginning' newest the Equator."

The grant to William Penn included a large tract of land in the northeastern part of the present State of Pennsylvania, generally referred to as the Wyoming Valley, which was claimed by Connecticut under its charter of 1662. (See fig. 19.) The Indian title to this land was transferred to settlers from Connecticut by deed dated July 11, 1754, wherein the area was thus described (Miner, 1845, p. 69; Stone, 1844, app.):

Beginning from the one and fortieth degree of north latitude, at ten miles distance east of Susquehanna River, and from thence, with a northerly line ten miles east of the river, to the forty-second, or beginning of the forty-third degree of north latitude, and to extend west two degrees of longitude, one hundred and twenty miles, and from thence south to the beginning of the forty-second degree, and from thence east to the aforementioned bounds * * *.

This area was organized by Connecticut in 1776 as the county of Westmoreland. The conflicting claims of Connecticut and Pennsylvania to this land were for many years a cause of dispute, and several battles were fought for its possession, but a court of arbitration appointed by the Continental Congress awarded it to Pennsylvania in 1782.

For a history of the northern and eastern boundaries of Pennsylvania, see New York, page 78 and New Jersey, page 80.

That part of the southern boundary of Pennsylvania which separates Pennsylvania from Delaware, as defined by the charter of 1681, is an arc of a circle of 12 miles radius, having New Castle, Del., as its center. This line was surveyed and marked in 1701 under a warrant from William Penn. (See p. 84.)

According to the original grant of 1681 the boundary between Pennsylvania and Maryland was to be the "beginning of the 40th degree of northern latitude," or what we would now call the 39th parallel of latitude. (See p. 80.) This boundary was for many years in dispute, Lord Baltimore claiming the country along Delaware Bay and River to the mouth of the Schuylkill, which was also claimed by the Duke of York under his grant of 1664. William Penn, in 1682, obtained from the Duke of York a release of his claim, but not until 1760 was an agreement reached with Maryland. Commissioners were appointed in 1732 and again in 1739 to run the line, but they failed to agree, and chancery suits were the result. Finally a decision of Lord Chancellor Hardwick in 1750 was taken as a basis for adjudication, and an agreement was signed July 4, 1760, by which the line between Pennsylvania on the one part and Delaware and Maryland on the other was to be determined as follows:

A due east-west line was to be run across the peninsula from Cape Henlopen to Chesapeake Bay. From the exact middle of this line a line was to be drawn

FIGURE 19.—Historical diagram of Pennsylvania.



north which would be tangent to the western arc of a circle having a radius of 12 English statute miles measured horizontally from the center of the town of New Castle. From the tangent point a line was to be drawn due north until it intersected a parallel of latitude 15 miles due south of the southernmost part of the city of Philadelphia. This point of intersection would be the northeast corner of Maryland, and from it the line was to be run west on a parallel as far as it formed the boundary between the two Provinces.

In 1760 commissioners and surveyors were appointed; they spent several years in measuring the base line and the tangent line between Maryland and Delaware. The proprietors became wearied with the delay and sent from England two famous mathematicians, Charles Mason and Jeremiah Dixon, who verified the work of their predecessors and ran the line between Pennsylvania and Maryland, ever since called the Mason and Dixon line and probably the most widely known boundary in the United States. (See fig. 19.) Mason and Dixon determined the latitude of this line, which they located 15 miles south of Philadelphia, to be 39°43'17.6" N. That they were skilled and did their work carefully is shown by the fact that by the resurvey, made 200 years later with modern instruments and methods, the position found for the line at the northeast corner of Maryland differed only 1.9" from that determined by them. The later position is 39°43'19.521" N. (See p. 85.)

Mason and Dixon began work on this line in 1763 but were stopped by Indians in 1767, after having run the line about 244 miles west of the Delaware (230 miles 18 chains 21 links from the northeast corner of Maryland) and thus not quite finishing the work as planned, although it has since been ascertained that they had run about 30 miles beyond the northwest corner of Maryland.⁸⁸

The original stones for 5-mile marks on this line were carved in England from oolitic limestone; Lord Baltimore's coat of arms was shown on the Maryland side and the Penn arms on the Pennsylvania side. (See fig. 2D.) Intermediate milestones were smaller and were marked "M" and "P" only, on opposite sides.

Because of the removal of the stone at the northeast corner of Maryland and for other reasons, it was deemed desirable to resurvey and re-mark the State

boundaries in that locality; consequently Maryland (in 1846), Delaware (in 1847), and Pennsylvania (in 1849) authorized the appointment of commissioners to undertake the task. An Army officer was delegated by them to make the surveys, which were completed in 1850. In the resurvey of the arc boundary and of the adjacent lines, the surveyor in charge unfortunately disregarded "the well-known rule that an actual line upon the ground is to be preferred to the written description of the same line in a deed." He changed the position of the arc boundary as marked in 1701 and assigned to Pennsylvania the triangular strip 3½ miles in length (about 840 acres in area) west of the arc boundary, east of Maryland and south of the Mason and Dixon line, which had previously been assumed to belong to Delaware. This survey was approved by the commissioners from the three States, but no formal action regarding it appears to have been taken by the State legislatures.⁸⁹

In 1889 and 1900 the Legislatures of Pennsylvania and Maryland authorized the appointment of a joint commission to "ascertain and re-mark" the boundary between the two States. The field work for this survey was commenced in 1900 and completed in 1903. No changes in the line as run by Mason and Dixon were made; straight lines were run between original monuments, and many new stones were set on the lines thus established. The report of the commission, dated January 25, 1907, was published in 1908 by authority of the Legislature of Maryland and in 1909 by Pennsylvania. These volumes contain a description of each of the 225 boundary monuments, including many of the original stones that were repaired and reset; they also contain a bibliography of manuscripts and documents relating to the line, which has more than 2,000 entries.

Positions for a dozen or more points on the Mason and Dixon line have been determined by the U.S. Geological Survey, some of which are as follows:

Latitude (N.)	Longitude (W.)
39°43'12.9"	77°29'05.6"
39°43'13.0"	76°58'42.3"
39°43'13.5"	76°57'26.9"
39°43'13.8"	76°55'11.4"
39°43'14.2"	76°52'55.7"
39°43'17.5"	76°41'54.3"

In 1889 the Legislatures of Delaware and Pennsylvania authorized the re-marking of the boundary between the two States. The commissioners agreed that the northern boundary of Delaware should run due east from the northeast corner of Maryland to a point 12 miles from the New Castle courthouse and thence follow a curved line passing through as many boundary marks of the 12-mile circle of 1701 as could be

⁸⁸ For a popular description of the work by Mason and Dixon, see Laquer (1931, p. 375).

⁸⁹ For report of the surveyor, see Delaware Senate Jour. for 1851, p. 56-109. A copy of the report and a map are filed in the Maryland Land Office at Annapolis.

identified. The resurvey was made,⁸⁰ and 46 marks were set on the arc boundary in 1892-93. The triangular tract assigned to Pennsylvania by the commissioners of 1849 thus reverted to Delaware. The report of the commission and the line as marked by it were "accepted, approved, and confirmed" by the Legislature of Pennsylvania by act of June 22, 1897 (Pennsylvania Laws for 1897, p. 183), but were not formally accepted by the Legislature of Delaware until March 28, 1921. The assent of Congress to the action of the States was given on June 30, 1921 (42 Stat. L. 104). The land part of the Pennsylvania-Delaware line as determined by this survey is 22.87 miles in length.

Commissioners from Virginia and Pennsylvania agreed in 1779 that the boundary between those States should be fixed as follows.⁸¹

That the line commonly called *Mason's and Dixon's line* be extended due west five degrees of longitude to be computed from the river *Delaware*, for the southern boundary of *Pennsylvania*; and that a meridian drawn from the western extremity thereof to the northern limits of the said states, respectively, be the western boundary of *Pennsylvania* forever.

In order to locate the boundaries as thus described, observations of the eclipses of Jupiter's satellites were made in 1784 at Wilmington and at a point estimated to be 5° of longitude west of the Delaware River. While this work was being done the Mason and Dixon line was extended westward by commissioners from Virginia (one of whom was Andrew Ellicott) and from Pennsylvania, and a point was marked for the southwest corner of Pennsylvania, which the astronomic computations showed should be a little more than 1½ miles east of the assumed position, where the observatory had been placed. From the southwest corner of Pennsylvania the meridian boundary was run to the north side of the Ohio River. The line between the Ohio and Lake Erie was surveyed and marked in 1785 by another commission.

The southern part of the west boundary was again surveyed and marked in 1883 by commissioners representing the two States. The survey was commenced at the Ohio, and the line was run south to the southwest corner of Pennsylvania, a measured distance of a little more than 63½ miles. Twenty-three of the old monuments were found, and 48 new ones were established. Astronomic positions of several marks on this boundary were determined in 1883 in connection with the resurveys. Two of these positions are as follows: Southwest corner of Pennsylvania, lat 39°43'18.2" N., long 80°31'08.2" W.; near Smiths Ferry on the Ohio River, lat 40°38'27.2" N., long 80°31'07.5" W.

The Ohio-Pennsylvania boundary was resurveyed and re-marked between 1878 and 1882, commencing at a granite monument 6 feet high and 3 feet square at the base, which was erected by the commissioners at a point 2,400 feet south of the edge of Lake Erie. The position of this monument is lat 41°58'15.23" N., long 80°31'10.60" W. (1927 N.A.D.). From this point the line was run south to the Ohio River, a distance of 92 miles.⁸²

The monument established in 1785 on the north bank of the Ohio in the west boundary of Pennsylvania is of considerable historical importance, for it marks the point from which the first surveys for dividing public land in the United States into ranges and townships were commenced (Peters, 1918, p. 33, 67; Sherman, 1916-33, v. 3, chap. 14).⁸³ This general system of surveys has been extended over all the public-land States and has even been adopted by some foreign countries.

The original marker used as a point of departure has long since disappeared. The location of this marker is referred to as the "point of beginning." A large granite monument was erected by Ohio and Pennsylvania in 1881 for the purpose of remarking the State line. This monument was near the original stake. It was moved to a more conspicuous position in 1961, and a bronze plaque was added commemorating the 175th anniversary of the establishment of the "point of beginning." (Popp, 1960, p. 229.)

By the formation of the State of Ohio from lands ceded to the United States by Virginia in 1784 and by Connecticut in 1800 and by the separation of West Virginia from Virginia in 1862, the above-mentioned meridian line became the boundary between Pennsylvania on the east and Ohio and West Virginia on the west.

The cession of 1781 by New York to the United States included a triangle of land, about 324 square miles in area, bounded by New York, Pennsylvania, and Lake Erie. In order to give Pennsylvania a larger outlet to the lake, this tract, known as the "Erie triangle," was sold by the General Government to that State for \$151,-

⁸⁰For other details concerning the survey of the west boundary of Pennsylvania, see report of Pennsylvania Dept. Internal Affairs (1883), which contains a description of each mark and a plat of the line; see also report for 1887. A historical sketch of the original surveys of the west boundary of Pennsylvania of 1785 and 1786, the report of the resurvey of the Ohio part of this line in 1878 to 1882, descriptions of the boundary, and plats of the line were published by the State of Ohio in 1883 (Joint Commission on Pennsylvania and Ohio boundary line, 1883).

⁸¹See plat of the seven ranges of townships, Ohio Surveys, 1785-1787, U.S. General Land Office file 57, Ohio.

⁸²For a report of this survey and a historical sketch of the Mason and Dixon line, see Hodgkins (1895).

⁸³Pennsylvania Dept. Internal Affairs (1887, p. 290), a separate volume of boundary maps accompanies this report. See also Hening (1822, v. 10, p. 519-537).

640.25," and the deed, dated March 3, 1792, was signed by George Washington.

The east line of the Erie triangle, being part of the west boundary of New York, was first surveyed and marked in 1790. (See p. 78.) In 1869 a new granite monument was placed on this boundary near the lake. In 1885 this monument was repaired, and the boundary was rerun to the south line of New York, a distance of a little more than 18 miles. In all, there were then 51 marks on the line. (See Pennsylvania Dept. Internal Affairs, 1887, p. 590, 592.)

DELAWARE

The area now forming the State of Delaware was originally settled by Sweden. In 1655 it was surrendered to the Dutch, who in turn, in 1664, surrendered it to the English; the Duke of York then took possession of it.

William Penn, who had received in 1681 a grant of the Province of Pennsylvania, bought or leased from the Duke of York the territory included in present-day Delaware, which was conveyed to him by two deeds of "feoffment" dated August 24, 1682. One conveyed a tract of land within a 12-mile circle about New Castle; the other was for "all that tract of land upon Delaware River and Bay beginning 12 miles south from the town of New Castle and extending south to the Horekills, otherwise called 'Lopen.'" Both leases were for a period of 10,000 years, but they conveyed land to which the Duke of York then had a very uncertain title. A better title was obtained by royal grant soon afterward and immediately transferred to William Penn (Mathews, 1909, p. 150). Lord Baltimore vigorously opposed William Penn's claim, and the matter was settled in 1685 by a royal order to divide the territory equally between the two claimants. For a description of the line as marked, see pages 81, 82, (Dallas, 1797, p. 24).

In 1701 William Penn granted a charter under which the Province of Pennsylvania and the territories (as Delaware was then called) were authorized to act as separate governments, though both were still under the proprietary government of William Penn.

Acting on the advice of the Continental Congress, the people of Delaware called a convention, which met at New Castle in August, 1776, and on September 10 adopted a constitution for the three counties that had

previously been known as "the Government of the counties of New Castle, Kent, and Sussex, upon Delaware," and declared that thereafter the Territory should be called "Delaware State." The boundaries then were substantially as at present. (Thorpe, 1909, v. 1, p. 561-562.)

For a history of the boundary between Delaware and Pennsylvania, see Pennsylvania, page 82; and for that between Delaware and New Jersey, see New Jersey, pages 79, 80.

From 1732 to 1769 there was a controversy between the proprietors of Pennsylvania and Maryland in regard to boundaries. The boundaries of Delaware on the south and west were determined as follows:

Beginning at Cape Henlopen and running due west 34 miles 309 perches; thence in a straight line 81 miles 78 chains and 30 links up the peninsula until it touches and makes a tangent to the western periphery of a circle drawn at the horizontal distance of 12 English statute miles from the center of the town of New Castle.

From this tangent point a line was run due north till it cut a parallel of latitude 15 miles due south of the most southern part of the city of Philadelphia. This point of intersection is the northeast corner of Maryland. As the tangent line bears a little west of north, the due-north line from the tangent point cuts off an arc of the 12-mile circle. The narrow segment thus formed is a part of Delaware and has an area of less than 20 acres. The boundary line follows the arc of the circle from the tangent point around to the point where the due-north line intersects the 12-mile circle, then follows this due-north line to the northeast corner of Maryland. The length of this due-north line, as given by Mason and Dixon, is 5 miles 1 chain and 50 links.

In 1961 and 1962, the U.S. Coast and Geodetic Survey resurveyed the north-south boundary between Maryland and Delaware. The length of this line, from "Middle Point" where the boundary turns north, to the northeast corner of Maryland, is approximately 87 miles. Stone markers had been established at 1-mile intervals by Mason and Dixon. In the resurvey of the 81 monuments established on the tangent line, 15 were missing and 5 were considered as having been displaced. These five points were more than four feet from a smooth curve passing through the end points and the new values of the intermediate points. The maximum displacement from a straight line is 18 feet, and is to the east.

The 20 missing or displaced monuments along the north-south tangent line are being replaced (1975).

The east-west boundary was resurveyed in 1974. The 5-mile markers established in the original survey were recovered and accepted. The posts that had been set at 1-mile intervals were presumably temporary and were not found. The bearing of this line from the

* This is at the rate of 75 cents an acre for an estimated area of 202,107 acres (315.92 sq. mi.). The area scaled from the most recent maps (including Presque Isle, 2 sq. mi.) is 324 sq. mi.

coast to monument 10 follows the parallel of latitude. From monument 10 to the midpoint, the line bears a little north of west. The midpoint is the initial point of the 1961-62 survey and was held fixed. Its 1927 N.A.D. position is lat 38°27'35.869" N., long 75°41'38.456" W. (Written commun., 1974, B.K. Meade, National Geodetic Survey).

The boundary north of the tangent point follows an arc of a circle. The radius of this circle from Newcastle was determined to be 12 miles plus 108 feet. The five monuments recovered were found to be within 4 feet of the circle.

Engineers making the new survey consider that Mason and Dixon determined the alignment of the markers with an amazing degree of accuracy in view of the instruments available in the 18th century. The distances were consistently short by about 10 or 12 feet per mile. This may indicate that the foot was a little longer than it is today. (For a description of this survey, see Meade, 1964, p. 33.)

The northeast corner of Maryland is at lat 39°43' 19.521" N., long 75°47'20.172" W. (1927 N.A.D.).

The southeast corner of Delaware is at lat 38°27' 04.082" N., long 75°03'19.185" W.

The terminal monument on the Delaware River on the Pennsylvania-Delaware line is at lat 39°48'27.92" N., long 75°25'31.53" W.

By the survey of 1849 the distance between the tangent point and the north end of the curve on the Maryland boundary is 7,743.7 feet, which would make the latitude of the latter point 39°40'13.47" N. The stone set in 1849 at this point, was thus described (Delaware S. Jour. for 1851, p. 102):

At the point of junction of the three States, a triangular prismatic post of cut granite, 18 inches wide on each side, and 7 feet long was inserted 4½ feet of its length into the ground. It occupies the exact spot on which the old unmarked stone was found. It is marked with the letters M. P. and D., on the sides facing, respectively, towards the States of Maryland, Pennsylvania, and Delaware. On the north side, below the letter P., are the names of the commissioners, in deep cut letters, namely: H. G. S. Key, of Md.; J. P. Eyre, of Pa. G. R. Riddle, of Del. Commissioners, with the date 1849.

This post is still in place, but now it is a mark on the boundary between Delaware and Maryland only, not a tri-State monument.

There was some confusion regarding the location of Cape Henlopen. The place chosen as the starting point for the south boundary line of Delaware is not the same as the present cape of that name. Lord Chancellor Hardwick said regarding its position.

that Cape Henlopen ought to be deemed * * * at the place where * * * laid down on the map or plan annexed to the said articles.

William Penn directed that Cape Henlopen be called Cape James or Jomus (Hazard, 1850, p. 606). The present Cape Henlopen was then called Cape Cornelis (Hazard, p. 5).

The foregoing statements explain the discrepancy between the base line across the peninsula and the position of Cape Henlopen on modern maps.

MARYLAND

The territory embraced in the present State of Maryland was included in the previous charters of Virginia, but nevertheless, in 1632, Lord Baltimore received a royal charter of the Province of Maryland, whose boundaries are defined in the following extract, translated from the original charter, which was in Latin (Thorpe, 1909, v. 3, p. 1678):

* * * all that part of the Peninsula, or Chersonese, lying in the Parts of America, between the Ocean on the East and the Bay of Chesapeake on the West; divided from the Residue thereof by a right line drawn from the Promontory, or Headland called Watkins Point, situate upon the Bay aforesaid, near the River Wigloo on the West, unto the main Ocean on the East; and between that Boundary on the South, unto that part of the Bay of Delaware on the North which lieth under the fortieth degree of north latitude from the Equinoctial, where New England is terminated: And all the Tract of Land within the Meets underwritten (that is to say), passing from the said Bay, called Delaware Bay, in a right line, by the Degree aforesaid, unto the true meridian of the first fountain of the River Patowmack; thence verging towards the South unto the farther Bank of the said River, and following the same on the West and South unto a certain Place called Cinquack, situate near the mouth of said River, where it disembogues into the aforesaid Bay of Chesapeake, and thence by the shortest Line unto the aforesaid Promontory or Place, called Watkins Point, so that the whole tract of land divided, by the Line aforesaid, between the main Ocean and Watkins Point unto the promontory called Cape Charles, * * * may entirely remain forever excepted to Us.

A comparison of the limits laid down in this charter with the several charters of Virginia and the charter and deeds to William Penn shows that there was a conflict of boundaries on both sides of the Maryland grant. The history of the long controversy with Pennsylvania has already been given. (See Pennsylvania, p. 82, and Delaware, p. 84.) Virginia claimed the territory under her charters and for a time seemed disposed to assert her claim, though in 1638 a proclamation by the governor and council of Virginia recognized the Province of Maryland and forbade trade with the Indians within the limits of Maryland without the consent of Lord Baltimore previously obtained (Bozman, 1837, p. 586). Virginia's claim was finally given up by a treaty or agreement made in 1658, and her relinquishment was reaffirmed in the constitution of 1776 (Thorpe, 1909, v. 7, p. 3818).

In 1663 the Virginia Assembly ordered a survey of the line between Virginia and Maryland on the peninsula and declared it to be "from Watkins Point east across the peninsula." They defined Watkins Point "to be the north side of Wicomico River on the eastern shore and neere unto and on the south side of the straight limbe opposite to Patuxent River." (Hening, 1821, v. 2, p. 184.)

In 1668, commissioners were appointed by Maryland and Virginia to fix the boundary across the peninsula. Their report, dated June 25, 1668, is as follows (Maryland Hist. Soc. Colln. State Papers, v. 4 LCB, p. 63-64):

After a full and perfect view taken of the point of land made by the north side of Pocomoke Bay and south side of Annemessex Bay have and do conclude the same to be Watkins Point, from which said point so called, we have run an east line, agreeable with the extremist part of the westernmost angle of the said Watkins Point, over Pocomoke River to the land near Robert Holston's, and there have marked certain trees which are so continued by an east line running over Swaneseques Creeke into the marsh of the seaside with apparent marks and boundaries.

Virginia, by the adoption of her constitution of 1776, relinquished all claim to territory covered by the charter of Maryland, thereby fixing Maryland's western boundary as follows:

Commencing on a true meridian of the first fountain of the river Patuxent, thence verging towards the south unto the further bank of the said river and following the same on the west and south unto a certain place called Cinquack, situate near the mouth of said river where it disemboques into the said aforesaid bay of Chesapeake and thence by the shortest line unto the aforesaid promontory or place called Watkins Point; thence a right line to the main ocean on the east.

The boundaries thus described are substantially the present boundaries, but for many years after they were adopted they remained a matter of controversy.

In the constitution of 1776 Virginia "reserved the property of the Virginia shores or strands [of Potomac and Pocomoke rivers] . . . and all improvements which have or will be made thereon." Maryland, in 1785, assented to this and declared (217 U.S. 579-580; Thorpe, 1909, v. 7, p. 3818) that

the citizens of each State . . . shall have full property on the shores of the Potomac . . . with all emoluments and advantages thereunto belonging, and with the privilege of making and carrying out wharves and other improvements.

In 1785 a compact (Hening, 1822, v. 13, p. 50) was entered into between the States of Maryland and Virginia, but as this referred more particularly to the

navigation and exercise of jurisdiction of the waters of Chesapeake Bay and Potomac and Pocomoke Rivers, it is not given here.

From 1821 to 1858 legislation was frequently enacted in regard to the Virginia boundary.⁵⁵ In 1858 commissioners were appointed by Maryland and Virginia, respectively, who, with the assistance of Lt. N. Michler, U.S. Engineers, undertook the survey of the lines.

In 1860 the Governor of Virginia, under a resolution of the legislature, appointed an agent and sent him to England to collect records and documentary evidence bearing on this question, but owing to the Civil War nothing further was done until 1867, when legislation again commenced.

The question of this boundary was referred to arbitrators by an agreement made in 1874, in which each State bound itself to accept their award as final and conclusive. In 1877 the arbitrators made the following award:⁵⁶

Beginning at the point on the Potomac River where the line between Virginia and West Virginia strikes the said river at low water mark, and thence following the meanderings of said river, by the low-water mark to Smith's Point, at or near the mouth of the Potomac, in the latitude 37°53'8", and longitude 76°13'46"; thence crossing the waters of the Chesapeake Bay, by a line running north 65°30' east, about nine and a half nautical miles, to a point on the western shore of Smith's Island at the north end of Sassafras Hammock, in latitude 37°57'13", longitude 76°2'52"; thence across Smith's Island south 88°30' east five thousand six hundred and twenty yards to the center of Horse Hammock, on the eastern shore of Smith's Island, in latitude 37°57'8", longitude 75°59'20"; thence south 79°30' east four thousand eight hundred and eighty yards to a point marked A on the accompanying map, in the middle of Tangier Sound, in latitude 37°56'42", longitude 75°56'23"; said point bearing from James Island light south 54° west, and distant from that light three thousand five hundred and sixty yards; thence south 10°30' west four thousand seven hundred and forty yards by a line dividing the waters of Tangier Sound, to a point where it intersects the straight line from Smith's Point to Watkins Point, said point of intersection being in latitude 37°54'21", longitude 75°56'55", bearing from James Island light south 29° west and from Horse Hammock south 34°30' east; this point of intersection is marked B on the accompanying map. Thence north 85°15' east six thousand seven hundred and twenty yards along the line above mentioned, which runs from Smith's Point to Watkins Point until it reaches the latter spot, namely, Watkins Point, which is in latitude 37°54'38", longitude 75°57'44"; from Watkins Point the boundary line runs due east seven thousand eight hundred and eighty yards, to a point where it meets a line running through the middle of Pocomoke Sound, which is marked C on the accompanying map, and is in latitude 37°54'38", longitude 75°47'50"; thence by a line dividing the waters of Pocomoke Sound north 47°30' east five thousand two hundred and twenty yards, to a point in said sound marked D on the accompanying map, in latitude 37°56'25", longitude 75°45'26"; thence following the middle of the Pocomoke River by a line of irregular curves, as laid down on the accompanying map, until it intersects the westward prolongation of the boundary line marked by

⁵⁵ See report of C. J. Faulkner (commissioner for Virginia), relative to the boundary lines between Virginia and Maryland, published in Doc. 1, House of Delegates of Virginia, 1892, p. 72.

⁵⁶ 20 Stat. L. 481-482. In the original report the degrees of latitude and longitude are given in words; they are here put in figures for convenient reference.

Scarborough and Calvert, May 28th, 1668, at a point in the middle of the Pocomoke River, and in the latitude 37°59'37", longitude 75°37'44"; thence by the Scarborough and Calvert line, which runs 5°15' north of east, to the Atlantic Ocean: the latitudes, longitudes, courses, and distances here given have been measured upon the Coast Chart No. 33 of the United States Coast Survey (sheet No. 3, Chesapeake Bay)."

The middle thread of the Pocomoke River is equidistant as nearly as may be between the two shores without considering arms, inlets, creeks, or affluents as parts of the river, but measuring the shore from headland to headland.

"... The low water mark on the Potomac to which Virginia has a right in the soil, is to be measured by the same rule.

In 1972, the States of Maryland and Virginia agreed to a more exact definition of their boundary in the area of Pocomoke Sound. Beginning at point D, mentioned above, the line continues by course and distance to the Scarborough and Calvert boundary.

The following definition of this portion of the boundary is taken from the Code of Virginia, Title 7.1, Section 7.

Beginning at a point which is corner D defined by latitude 37°56'28.00" and longitude 75°45'43.56", which is the last point on the Maryland-Virginia line that was defined by the joint report of engineers on relocating and remarking Maryland-Virginia boundary line across Tangier and Pocomoke Sounds December 1916; thence running N 73°34'31.9"E about 17,125.11 feet to corner H a point defined by latitude 37°57'15.82" and longitude 75°42'18.48"; thence running N 85°39'33.9"E about 3,785.82 feet to corner J a point defined by latitude 37°57'18.65" and longitude 75°41'31.25"; thence running S 74°16'00.8"E about 7,278.41 feet to corner K a point defined by latitude 37°56'59.13" and longitude 75°40'03.89"; thence running S 61°57'55.7"E about 3,664.73 feet to corner L a point defined by latitude 37°56'42.10" and longitude 75°39'23.51"; thence running N 76°15'24.5"E about 2,263.49 feet to corner M a point defined by latitude 37°56'47.65" and longitude 75°38'54.85"; thence running N 00°49'51.5"W about 7,178.56 feet to corner N a point defined by latitude 37°57'58.61" and longitude 75°38'56.15"; thence northeasterly about 3 1/2 miles following the middle thread of the meandering Pocomoke river to corner P a point defined by latitude 37°59'39.37" and longitude 75°37'26.52", which is at or near the point of intersection with the "Scarborough and Calvert boundary line of May 28, 1668; corners N and P are connected by a line running N 35°08'33.5"E about 12,465.32 feet; thence N 83°45'59.9"E about 24,156.95 feet to the boundary monument near triangulation station Davis on the "Scarborough and Calvert boundary line of May 28, 1668." Geographic positions are based on 1927 datum.

The agreement also defines the mutual seaward boundary as running from triangulation station Boundary Monument Pope Island Life Saving Station (Md.-Va.) 1907. The position of this monument is lat 38°01'.36.93" N., long 75°14'47.10" W., 1927 N.A.D. The line runs on a bearing of N. 84°05'43.5" E. 1,100 feet to station Atlantic at the shoreline. Station Atlantic is an unmonumented point. Thence it continues on a line of constant latitude to the outer limit of territorial waters. The consent of Congress to this boundary delineation was given October 25, 1972 (86 Stat. 1180).

"Three copies of this chart were prepared, one for each of the two States and one for the files of the Coast and Geodetic Survey; they show by red lines the boundary eastward from Smith's Point and the line up the Potomac for 18 miles. (See Whiting, 1891, p. 621-623.)

The original charter to Lord Baltimore embraced the Potomac River to high-water mark on the south or Virginia shore (174 U.S. 225) but the arbitrators of 1877 changed the boundary to the low-water line, giving as their reason for doing so the long occupation by Virginia of the land above that line; they declared that "the length of time that raises a right of prescription in private parties likewise raises such a presumption in favor of States as well as private parties,"⁸⁸ and that "Virginia, from the earliest period of her history, used the south bank of the Potomac as if the soil to low-water mark had been her own" (217 U.S. 580). The award of the arbitrators was accepted by the legislatures of the two States and was approved by act of Congress March 3, 1879 (20 Stat. L. 481).

In 1879 and 1880 acts were passed by the Legislatures of Maryland and Virginia to appoint commissioners and to request the general government to designate one or more officers of the Engineer Corps to survey and mark this line and erect monuments thereon, but little of permanent value seems to have been accomplished. (Whiting, 1891, p. 621-623.)

In 1927 the Governors of Maryland and Virginia directed the State geologists to examine the west shore of the Potomac and to recommend points (headlands) between which straight lines should be drawn for the boundary. Their report,⁸⁹ submitted December 21, 1927, contains six maps on which are indicated by red lines the position recommended. The location of the boundary line as thus indicated was accepted by Virginia act approved March 26, 1928 (chap. 477) and by Maryland act of March 8, 1929 (chap. 50), and appropriations were made by each State for the surveying and marking of the line.

Commissioners were appointed by the States of Maryland and Virginia in 1916

to mark and maintain with buoys placed at intervals of not more than one mile apart the line between the waters of the State of Maryland and the waters of the State of Virginia, from Cedar Straits in Pocomoke Sound or Williams Point in Pocomoke River.

Their report, with descriptions of marks established and some historical matter, was published in Baltimore in 1917.

⁸⁸ Title to United States or State land cannot be acquired by adverse possession, even though long continued. The statute of limitations does not hold against the United States or a State where possession of land is concerned. 29 Fed. Res. 55, 56 Pac. 278.

⁸⁹ Mathews and Nelson (1928). This report contains historical references to the boundary disputes between 1668 and 1889 and acts of Virginia and of Maryland relating to boundaries.

The line across Chesapeake Bay from Smiths Island to Tangier and Pocomoke Sounds by way of Watkins Point was marked by buoys anchored to 1,000-pound masses of concrete.

Commissioners appointed in 1859 by Virginia and Maryland surveyed a line for the western boundary of Maryland from the "Fairfax Stone" (see p. 94), at the "first fountain" of the Potomac, north to the Pennsylvania line. This survey was accepted by Maryland but not by Virginia, nor was it accepted by West Virginia when made a State. An area of about 40 square miles remained in dispute until 1910, when commissioners appointed by the U.S. Supreme Court and acting under its direction resurveyed the line and placed the initial point, which thereby became the southwest corner of Maryland, on the south bank of the North Branch of Potomac River, 3,989 feet from the Fairfax Stone on a line N. 0°56' E. from it. From that point (monument 1) the line

crosses the said North Branch of the Potomac, and thence running northerly, as near as may be, with the Deakins or old State line of the State of Pennsylvania.

The "Deakins line" followed the boundaries of old land grants made by Maryland and Virginia and, re-established in 1910 by the commissioners, is a broken line with a general bearing a little east of north. There are five offsets in the line, which run nearly east and west and range in length from 54 to 971 feet. A large concrete monument was erected at each angle and many at intermediate points, 60 in all, on the line, which is nearly 36 miles long.

The following quotation from the report, dated October 31, 1911, of the commissioners to the Supreme Court of the United States, which was confirmed by the court May 27, 1912 (225 U.S. 31), shows how boundary lines are often determined¹ (see fig. 20):

*** A large anciently marked white oak tree. *** This tree was cut and blocks were taken out by your commissioners which showed surveyors' axe marks in the wood; one 130 years old, one 117 years, and the last 78 years, thus indisputably establishing this course as following the oldest marked line extant.

Fairfax Stone is lat 39°11'41.62" N., long 77°29'15.31" W. Monument 1 is in lat 39°12'21.14" N., long 79°29'14.48" W., and the monument on the Mason-Dixon line is lat 39°42'15.68" N., long 79°28'37.53" W. These positions are referred to the 1927 N.A.D.

¹ 225 U.S. 3. Also, the National Geographic Magazine for December 1929 describes in considerable detail the method for determining dates from the count of the annual growth of tree rings.

From monument 1 the boundary between Maryland and West Virginia extends along the south bank of the North Branch of the Potomac to the Virginia and West Virginia State line.

A chronological outline of events relating to Maryland boundaries is given in "Maryland Boundary Disputes" by Charles Morrison.

DISTRICT OF COLUMBIA

On September 5, 1774, the Continental Congress met at Philadelphia. Two years later it adjourned to Baltimore. During the Revolution and subsequent to the treaty of peace, it met in various places. (See p. 167.) After the end of the war there was much debate in regard to the location of a permanent seat of the Government of the United States. Several States made propositions to Congress, offering to cede certain lands for the purpose, but no determination of the location was made by Congress until 1790.²

On December 23, 1788, Maryland passed the following act:

Be it enacted by the general assembly of Maryland, That the representatives of this State in the House of Representatives of the Congress of the United States, appointed to assemble at New York on the first Wednesday of March next, be, and they are hereby, authorized and required on the behalf of this State to cede to the Congress of the United States any district in this State, not exceeding ten miles square, which the Congress may fix upon and accept for the seat of government of the United States.

In the following year (Dec. 3, 1789) the State of Virginia passed a similar act, from which the following is an extract:

Be it therefore enacted by the general assembly, That a tract of country not exceeding ten miles square or any lesser quantity, to be located within the limits of the State and in any part thereof as Congress may by law direct, shall be, and the same is hereby, forever ceded and relinquished to the Congress and Government of the United States, in full and absolute right and exclusive jurisdiction, as well of said soil as of persons residing or to reside thereon, pursuant to the tenor and effect of the eighth section of the first article of the Constitution of the Government of the United States.

After long discussion Congress, in view of these cessions by Maryland and Virginia, passed an act, approved July 16, 1790, from which the following is an extract (1 Stat. L. 130):

That a district of territory, not exceeding ten miles square, to be located as hereafter directed on the river Potomac, at some place between the mouths of the Eastern Branch and Connoquecheque, be, and the same is hereby, accepted for the permanent seat of the government of the United States: *Provided, nevertheless*, That the operation of the laws of the State within such district shall not be affected by this acceptance until the time fixed for the removal of the Government thither, and until Congress shall otherwise by law provide. *** three commissioners, who, or any two of whom, shall,

² For reference to the discussions which resulted in selecting the site on the Potomac, see Bryan (1914, v. 1, chap. 1) For a historical sketch of the area now included in the District of Columbia, see U.S. Cong. (1901).

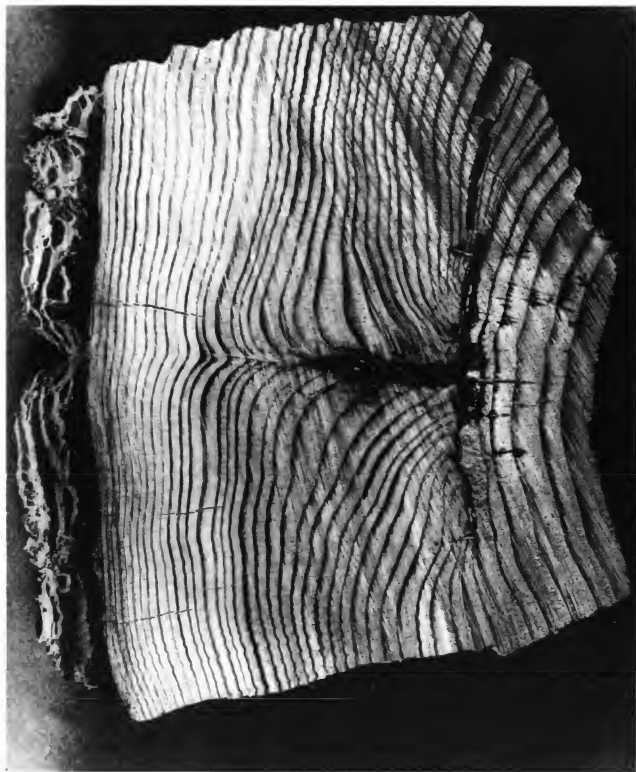


FIGURE 20.—Section of a tree that had been used a boundary mark. Tree blazed October 20, 1873; section cut July 20, 1909.

under the direction of the President, survey, and by proper metes and bounds define and limit, a district of territory, under the limitations above mentioned; and the district so defined, limited, and located shall be deemed the district accepted by this act for the permanent seat of the Government of the United States. * * * That on the first Monday in December, in the year 1800, the seat of the Government of the United States shall, by virtue of this act, be transferred to the district and place aforesaid.

In 1791 the foregoing act was amended, in order to include a portion of the Anacostia River ("Eastern Branch") and the town of Alexandria within the limits of the District. The following is an extract from the act of amendment, approved March 3, 1791 (1 Stat. L. 214):

* * * That so much of the act entitled "An act for establishing the temporary and permanent seat of the government of the United States" as requires that the whole of the district of territory, not exceeding ten miles square, to be located on the river Potomac for the permanent seat of the government of the United States, shall be located above the mouth of the Eastern Branch, be, and is hereby, repealed, and that it shall be lawful for the President to make any part of the territory below the said limit and above the mouth of Hunting Creek, a part of the said district, so as to include a convenient part of the Eastern Branch, and of the lands lying on the lower side thereof, and also the town of Alexandria: and the territory so to be included shall form a part of the district not exceeding ten miles square for the permanent seat of the government of the United States, in like manner and to all intents and purposes as if the same had been within the purview of the above recited act: *Provided*, That nothing herein contained shall authorize the erection of the public buildings otherwise than on the Maryland side of the river Potomac, as required by the aforesaid act.

In pursuance of the acts above cited, three commissioners were appointed under whose direction surveys of the territory were to be made, and on March 30, 1791, President Washington issued a proclamation, in which the bounds of the District were defined as follows (Bryan, 1914, p. 120, 132, 133):

Beginning at Jonas's Point, being the upper cape of Hunting Creek, in Virginia, and at an angle in the outset of 45 degrees west of the north, and running in a direct line 10 miles for the first line, then beginning again at the same Jonas's Point and running another direct line at a right angle with the first across the Potomac, 10 miles for a second line; then, from the termination of the said first and second lines, running two other direct lines, of ten miles each, the one crossing the Eastern Branch aforesaid, and the other the Potomac, and meeting each other in a point.

In 1800 Congress removed to this District. In 1801 the District was divided into two counties, as follows (2 Stat. L. 105):

* * * the said district of Columbia shall be formed into two counties: one county shall contain all that part of said district which lies on the east side of the river Potomac, together with the islands therein, and shall be called the county of Washington: the other county shall con-

tain all that part of said district which lies on the west side of said river, and shall be called the county of Alexandria: and the said river, in its whole course through said district, shall be taken and deemed to all intents and purposes to be within both of said counties.

In 1846 Congress passed an act providing for the retrocession to Virginia of that part of the District of Columbia originally ceded to the United States by Virginia. The following is an extract from this act (9 Stat. L. 35-36):

That with assent of the people of the county and town of Alexandria, to be ascertained as hereinafter prescribed, all of that portion of the District of Columbia ceded to the United States by the State of Virginia, and all the rights and jurisdiction therewith ceded over the same, be, and the same are, hereby ceded and forever relinquished to the State of Virginia in full and absolute right and jurisdiction, as well of soil as of persons residing or to reside therein.

The method prescribed for ascertaining the assent of the people of Alexandria was by oral vote of free white male citizens, to be taken before five commissioners appointed by the President.

There were 763 votes cast in favor of recession and 222 against it. The President, therefore, by proclamation dated September 7, 1846 (9 Stat. L. 1000), declared the act "in full force and effect." The southwestern boundary of the District of Columbia thus became coincident with that part of the boundary of Maryland prior to December 23, 1788, regarding which the U.S. Supreme Court stated (174 U.S. 225)

that upon all the evidence, the charter granted to Lord Baltimore, by Charles I, in 1632, of the territory known as the Province of Maryland, embraced the Potomac River and the soil under it, and the islands therein, to highwater mark on the southern or virginia shore: * * * nor was such grant effected by the subsequent grant to Lord Culpepper.

Congress in the act (20 Stat. L. 481) approving the award of the arbitrators of 1877 for Maryland and Virginia provided that nothing therein contained "shall be construed to impair or in any manner affect any rights of jurisdiction of the United States in and over the islands and waters" of the Potomac.

Below are given extracts from an opinion by the Attorney General dated January 16, 1912, relating to the high-water line on the south bank of the Potomac as the boundary line between the District of Columbia and Virginia.

In the Potomac River there is a high-water line due to freshets at 13 feet above mean low tide. There is a high tide line not influenced by freshets or caused by high winds at 8.8 feet above mean low tide. There is a mean high tide at about 5 feet above mean low water, and that is the elevation along which drift, trash, etc., remain as an indication; and there is a mean tide line at 3 feet above low water.

High-water mark in a river or stream is "the point to which the water usually rises in an ordinary season of high water" (Johnson v. Knott, 13 Oreg. 308).

"High-water mark is to be determined not from human records but from the records which the river makes for itself," and the true line is "that which the river impressed upon the soil as the limit of its dominion" (Houghton v. The Chicago & N.W. Ry. Co., 47 Iowa, 370-373).

"High-water mark is coordinate with the limit of the bed of the water; and that only is to be considered the bed which the water occupies sufficiently long and continuously to wrest it from vegetation and destroy its value for agricultural purposes" (Carpenter v. Board of Commrs. Hennepin County: 56 Minn. 513).

Farnham (Waters and water rights, v. 2, p. 1461), gives the following as to high-water mark:

"But the definition which best meets all requirements of the case and which has in fact been adopted by the weight of authority is that 'high-water mark is the point below which the pressure and action of the water are so common and usual and so long continued in all ordinary years as to make upon the soil a character distinct from that of the banks with respect to vegetation as well as with respect to the soil itself.'"

If the mean high tides at the 5-foot elevation above low-water mark appear to be the most usual line reached under all ordinary circumstances when the river is undisturbed either by freshets, unusual winds, and high tides, or unaffected by droughts, which condition is usually evidenced by drifts and other deposits, and to which line the rise is most constant, the pressure and action of the water upon the soil making the line more definite than at any other point, then the 5-foot mean high-tide line established by the action of the water above mean low water is legally the high-water mark or high-tide line, and consequently the boundary line.

In a Supreme Court decision rendered November 7, 1921,⁴ involving the question whether the boundary between the District of Columbia and Virginia runs from "headland to headland," as the Maryland-Virginia boundary does, or follows the meanderings of the river, the latter course was accepted. The court also decided that the United States is entitled to the possession of land in the District that has been reclaimed by filling in below low-water line on the Virginia side. Jurisdiction and sovereignty over the tract in dispute in this case, comprising an area of 46.57 acres adjoining Alexandria, were transferred to Virginia by United States act approved February 23, 1927 (44 Stat. L., pt. 2, p. 1176).

The District Court of Appeals, in a decision rendered November 6, 1922, recognized the claim that high-water mark on the south bank of the Potomac is the boundary between the District of Columbia and Virginia. This location of the boundary was reaffirmed by the U.S. Supreme Court May 4, 1931 (283 U.S. 349).

The high-water line on the Virginia side of the Potomac was determined by the U.S. Coast and Geodetic Survey in 1947. Monuments were established by triangulation, and the mean high-water line was tied into these. The elevation of this line was 1.86 feet for stations 5 through 14. The boundary crosses the mouths of all tributaries affected by tides. From the intersection of the high-water line and and the centerline of Second Street in Alexandria, extended, the boundary follows the established pierhead line to the corner common to the District, Maryland, and Virginia (59 Stat 552).

The District of Columbia was planned to be exactly 10 miles square, but it has been found that the north-east side measures 263.1 feet and the southeast side 70.5 feet more than 10 miles. The lines do not bear exactly 45° from the meridian, but the greatest variation is only 1¼ feet (Baker, 1894, p. 149-155). The entire boundary of the District of Columbia was surveyed in 1791 and was marked with sandstone mileposts in 1792. These posts, except those at the four corners, were numbered from 1 to 9, counting clockwise, for each of the four boundary lines (Shuster, 1909, v. 20, p. 356).

In 1915-1921 each of the original boundary stones was surrounded by an iron fence, erected by the District of Columbia and Virginia chapters of the Daughters of the American Revolution.

By a bill approved March 3, 1903 (32 Stat. L. 961) funds were provided for additional marks on the District of Columbia-Maryland boundary line, to be placed at road crossings and at other prominent points. The work was completed the same year, but without the formal cooperation of any Maryland representative. The new marks are of cut granite, 6 inches square on top, and project 12 inches above ground.

The latitudes and longitudes of the north, east, and south cornerstones of the District of Columbia are as follows:

	Latitude (N.)	Longitude (W.)
North corner	38°59'45.34"	77°02'28.63"
East corner	38°53'33.90"	76°54'34.10"
South corner	38°47'24.90"	77°02'27.19"

These positions are on 1927 North American Datum. The south corner stone at Jones Point, below Alexandria, which was the first one established, was set with appropriate ceremonies April 15, 1791.

By act of February 21, 1871 (16 Stat. L. 419), the entire area within the boundary of the District was made a distinct government with the title of the District of Columbia and constituted a "body corporate for municipal purposes."⁵

The initial point of several of the original land grants upon which the city of Washington is founded was a mark on a large rock commonly called the "Key of all keys," which was then at the edge of the Potomac River. According to tradition, Braddock's army landed

⁴ The following cases are in harmony with the authorities quoted above: Howard v. Ingersoll, 13 Howard, 415-422; Shively v. Bowlby, 152 U.S. 12.

⁵ Marine Railway and Coal Co. v. United States of America, 257 U.S. 47.

⁵ See 174 U.S. 196-590 for land history of the area covered by the District of Columbia from the time of the King's grant to Lord Baltimore, June 20, 1632, includes reproductions of several old maps. This case gives many references to former decisions relating to riparian rights.

at this place on its way to Fort Duquesne. This rock has been covered with dirt and the river bed filled in so that the concrete pier and tablet established in 1910 over the mark are now more than 1,000 feet from the river's edge. The new mark is in the Naval Hospital grounds about 300 feet west from the corner of Twenty-third Street and Constitution Avenue, NW.

The zero milestone, from which public highways of the United States are supposed to radiate, authorized by joint resolution of Congress June 5, 1920 (41 Stat. L. 1062), and dedicated June 4, 1923, is a granite pier 24 by 24 inches in section, mounted on a concrete base and projecting 4 feet above ground, standing on the north edge of the Ellipse, 900 feet south of the White House, in lat 38°53'41.99" N., long 77°02'12.66" W. The tablet in the base is 28.65 feet above mean sea level.

VIRGINIA⁶

In 1606 King James I of England granted the "first charter" of Virginia. The boundaries therein described are as follows (Thorpe, 1909, v. 7, p. 3783):

"... situate, lying, or being all along the Sea Coasts, between four and thirty degrees of *Northerly* Latitude from the Equinoctial Line and five and forty degrees of the same Latitude, and in the main Land between the same four and thirty and five and forty Degrees and the Islands thereunto adjacent, or within one hundred miles of the coast thereof.

In 1609 a new charter was granted, called the "second charter" of Virginia, which defines the boundaries in the following terms (see fig. 21) (Thorpe, 1909, v. 7, p. 3795):

"... situate, lying, being in that part of America, called *Virginia*, from the point of Land, called *Cape or Point Comfort*, all along the Sea Coast to the Southward, two hundred miles, and from the said point of *Cape Comfort*, all along the Sea Coast to the Southward, two hundred Miles, and all that Space and Circut of Land, lying from the Sea Coast of the Precinct aforesaid, up into the Land, throughout from Sea to Sea, West and Northwest; And also all the Islands lying within one hundred Miles along the Coast of both Seas of the Precinct aforesaid.

In 1611-12 the "third charter" of Virginia was granted, which was an enlargement of the second. It gave the following territory (Thorpe, 1909, v. 7, p. 3804):

"... all and singular those Islands whatsoever, situate and being in any Part of the Ocean Seas bordering upon the Coast of our said first Colony in *Virginia*, and being within three Hundred Leagues of any of the Parts heretofore granted to the said Treasurer and Company in our former Letters Patent as aforesaid, and being within or between the one-and-fortieth and thirtieth Degrees of *Northerly* Latitude.

⁶ The Commonwealth of Virginia is the full legal name for this State. For a brief history of cessations to Virginia, the Caroline, and Georgia and of boundary-line surveys between them from 1606 to 1821, see Haywood (1891, p. 15-37). For reference to old Virginia charters, abstracts of boundary descriptions, and descriptions of boundary marks, see Code of Virginia (1919, v. 1, p. 16-22, Richmond).

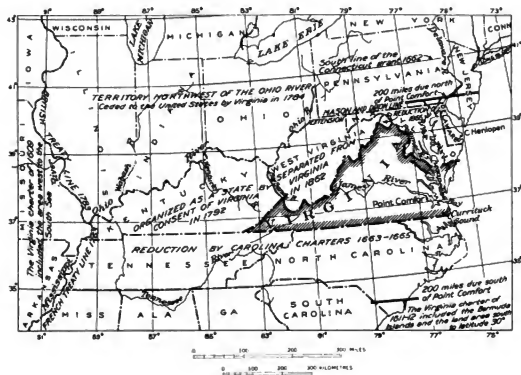


FIGURE 21.—
Historical diagram
of Virginia.

The charter of 1609 gave Virginia a strip of land bordering on the coast for 200 miles northward from Point Comfort and for the same distance southward and extending inland west and northwest to the South Sea.⁷ A point 200 miles due north of Point Comfort would fall in lat 39°54' N., or about 13 miles north of the present south boundary of Pennsylvania. An irregular line 200 miles long, measured along the coast from Point Comfort, would reach about as far north as the Pennsylvania boundary. A point 200 miles due south from Point Comfort would fall in lat 34°06' N. The territory included within these boundaries comprised, wholly or in part, the present States of Pennsylvania, New Jersey, Delaware, Maryland, North Carolina, and South Carolina and the vast region stretching west and northwest to the Pacific Ocean.

The area covered by the charter of 1611-12 included the Bermuda Islands.

In 1625 the colony was changed to a royal province, the three charters having been canceled by judgment of the Court of Kings Bench in the preceding year (Donaldson, 1884, p. 33), but Virginia still claimed the boundaries fixed by the charters.

The description "west and northwest" left the northern boundary of the colony poorly defined, but it was more definitely fixed when reductions in area were made by the charters to Maryland in 1632 and to Pennsylvania in 1681. The Connecticut charter of 1662 practically made the parallel of 41° the northern boundary. (See p. 72.) The charters of Carolina in 1663 and 1665 changed the southern boundary to its present statute position.

The area of Virginia was still further reduced by the French treaty of 1763, which made the Mississippi River the west boundary, by the cession to the United States of the territory northwest of the Ohio River in 1784, by the admission of Kentucky as an independent State in 1792, by the division in 1863 when the new State of West Virginia was created and admitted to the Union, and finally by the transfer of two counties to West Virginia in 1866. (See fig. 21.)

By the constitution of 1776 Virginia formally gave up all claim to the territory now appertaining to the neighboring States of Maryland, Pennsylvania, North Carolina, and South Carolina, as is seen by the following extract:

The territories contained within the Charters erecting the Colonies of Maryland, Pennsylvania, North and South Carolina are hereby ceded, released, and forever confirmed, to the people of these Colonies, respectively, with all the rights of property, jurisdiction, and government, and all the rights whatsoever, which might at any time heretofore, have been claimed by Virginia, except the free navigation and use of the rivers Patomac and Potomack, with the property of the

Virginia shores and strands, bordering on either of said rivers, and all improvements, which have been or shall be made thereon. The western and northern extent of Virginia shall, in all other respects, stand as fixed by the charter of King James I. in the year one thousand six hundred and nine, and by the public treaty of peace between the Courts of Britain and France in the year one thousand seven hundred and sixty-three; unless by act of this Legislature one or more governments be established westwards of the Alleghany mountains.

In the meantime grants of territory had been made within the present limits of Virginia and West Virginia, which caused great dissatisfaction to the people of the Virginia Colony and which ultimately had an important bearing in settling the divisional line between Maryland and Virginia.

In the twenty-first year of Charles II (1670) a grant was made to Lord Hopton and others of what is still called "the northern neck of Virginia," which was sold by the other patentees to Lord Culpepper and confirmed to him by letters patent in the fourth year of James II (1689). This grant carried with it nothing but the right of soil and incidents of ownership, it being expressly subjected to the jurisdiction of the Government of Virginia. The tract of land thereby granted was "bounded by and within the heads of the rivers Rappahannock, alias Rappahannock, and Quirough, alias Potomack." On the death of Lord Culpepper this proprietary tract descended to Lord Fairfax, who had married Lord Culpepper's only daughter.

As early as 1729 difficulties arose from conflicting grants made by Lord Fairfax and the Crown. In 1730 Virginia petitioned the King, reciting that the head springs of Rappahannock and Potomac Rivers were not known and praying that such measures might be taken that they might be ascertained to the satisfaction of all parties. In 1733 Lord Fairfax made a similar petition, asking that a commission might be appointed to ascertain, survey, and mark the true boundaries of his grant. An order was accordingly issued, and in 1736 three commissioners were appointed on the part of the Crown and three on the part of Lord Fairfax. These commissioners were to ascertain by actual examination and survey the respective fountains of Rappahannock and Potomac Rivers. This survey was made in 1736. The report of the commissioners was referred to the council for plantation affairs in 1738, who reported their decision as follows:

* * * The said boundary ought to begin at the first spring of the south branch of the river Rappahannock, and that the said boundary be from thence drawn in a straight line northwest to the place in the

⁷ Mar del Sur (South Sea) was the name given to the Pacific Ocean by Balboa in 1513, when he first saw it at a place where the shoreline runs nearly east and west.

Allegheny Mountains where that part of the Potomac River, which is now called Cohongoroota, first rises.

This report was confirmed by the King, and other commissioners were appointed to survey and mark the dividing line. The line was run in 1746. On October 17, 1746, the commissioners planted the Fairfax Stone at the spot which had been described and marked by the preceding commissioners as the true headspring of the Potomac and which, notwithstanding much controversy, has continued to be so regarded from that period to the present time. Besides limiting the Fairfax tract, this location was of greater importance as marking the southern point of the western boundary of Maryland.

A description of the original Fairfax Stone, as it appeared in 1859, was given in a report by Lieutenant Michler, as follows:

It consists of a rough piece of sandstone, indifferent and friable, planted to the depth of a few feet in the ground and rising a foot or more above the surface; shapeless in form, it would scarce attract the attention of the passer by. The finding of it was without difficulty, and its recognition and identification by the inscription now almost obliterated by the corroding action of water and air.

When the commissioners for the Maryland-West Virginia boundary visited this locality in 1910, no trace of the original mark was found, although the mark set by Lieutenant Michler was readily identified. A large concrete monument was then built at this point.* As stated on page 88, these commissioners placed the monument marking the southwest corner of Maryland on the south bank of the North Branch of the Potomac, nearly 4,000 feet north of the Fairfax Stone.

This tract of land was held by Lord Fairfax and his descendants for many years, but subsequent to the Revolution the quitrents and similar charges were abolished, and it became in all respects subject to the jurisdiction of Virginia.

For the history and description of the boundary line between Virginia and Maryland see pages 86-88; and for the line between Virginia and West Virginia, see page 95.

Kentucky formed originally a part of the county of Pinckney, Va. In 1776 this county was divided into three counties, the westernmost of which was called Kentucky County, and its eastern boundary was declared to be as follows (Hening, 1821, v. 9, p. 257):

*For report of the commissioners, including description and position of each of the 34 monuments, see 225 U.S. 2-30. For references concerning Virginia, Maryland, and West Virginia boundaries, see 217 U.S. 1-47.

A line beginning on the Ohio, at the mouth of Great Sandy Creek, and running up the same and the main or northeasterly branch thereof to the Great Laurel Ridge or Cumberland Mountains; thence south-westerly along the said mountain to the line of North Carolina.

Kentucky having been admitted into the Union June 1, 1792, commissioners were appointed in 1798 by Virginia and Kentucky to fix the boundary. In 1799-1800 the commissioners' report was made and ratified by the States. It was as follows (Shepherd, v. 2, p. 234):

To begin at the point where the Carolina, now Tennessee, line crosses the top of the Cumberland mountains, near Cumberland Gap, thence northwesterly along the top or highest part of the said Cumberland mountain, keeping between the headwaters of Cumberland and Kentucky rivers, on the west side thereof, and the headwaters of Powell's and Gueat's rivers, and the Pound fork of Sandy, on the east side thereof, continuing along the said top, or highest part of said mountain, crossing the road leading over the same at the Little Paint Gap, where by some it is called the Hollow mountain and where it terminates at the West Fork of Sandy, commonly called Russell's fork, thence with a line to be run north 45° east till it intersects the other great principal branch of Sandy, commonly called the northeasterly branch, thence down the said northeasterly branch to its junction with the main west branch and down Main Sandy to its confluence with the Ohio.

It will be seen that the northern part of this line is the present line between West Virginia and Kentucky.

The exact location of the boundary along "Great Sandy Creek" and its "northeasterly branch" (now called the Big Sandy River and the Tug Fork) is somewhat in doubt. The best evidence as to its proper position thus far found is that indicated on Bishop James Madison's map of Virginia, dated 1807, where it is shown as being on the west bank of both streams. This evidence is in a measure confirmed by a clause in the West Virginia State constitution of 1872, which is as follows:

The State of West Virginia includes the bed, bank and shores of the Ohio river, and so much of the Big Sandy river as was formerly included in the commonwealth of Virginia.

Virginia at one time owned the entire area of Kentucky and claimed territory north of the Ohio. Many court decisions have fixed the low-water line on the north bank of the Ohio as the boundary resulting from this claim. It therefore seems reasonable to assume that the Kentucky boundary should be so placed as to exclude the bed and shores to low-water mark on the west side of the two streams.

For the history of the settlement of the boundary between Virginia and North Carolina, see North Carolina, pages 96-98.

In 1779 Virginia and North Carolina appointed commissioners to run the boundary line between the two States west of the Allegheny Mountains, on the parallel of 36°30'. The commissioners were unable to agree on the location of the parallel; they therefore ran two parallel lines 2 miles apart, the northern known as Henderson's line and claimed by North Carolina, the

southern known as Walker's line and claimed by Virginia. In the year 1789 North Carolina ceded to the United States all territory west of her present boundaries, and as Tennessee was formed from the ceded territory, this question became one between Virginia and Tennessee.

Commissioners appointed by Virginia and Tennessee to establish the boundary adopted a compromise line. Their report was made in 1803 and was as follows (Haywood, 1823, p. 9; 1891, p. 487-497):

A due west line equally distant from both Walker's and Hendersot's, beginning on the summit of the mountain generally known as White Top mountain, where the northeast corner of Tennessee terminates, to the top of the Cumberland Mountain, where the south-western corner of Virginia terminates.

This line, which is about a mile north of the Walker line, was marked on trees by five notches arranged in the form of a diamond and is often called the "diamond line." It was adopted by the legislatures of both States in 1803.

In 1871 Virginia passed an act for appointing commissioners to readjust this line. Tennessee the following year passed an emphatic resolution refusing to reopen the question regarding a boundary which she considered "fixed and established beyond dispute forever" (Tennessee H. Jour. for Mar. 23, 1872, p. 71).

In 1889 Virginia took the matter to the Supreme Court of the United States, which in 1893 decreed that the line as surveyed and marked in 1803 is the true boundary.*

Until 1784 Virginia exercised jurisdiction over a large tract of country northwest of the Ohio River, but by a deed executed March 1, 1784, she ceded to the United States all that territory, thus making the northern part of her western boundary the north and north-west bank of the Ohio.

On December 31, 1862, the State of Virginia was divided, and 48 counties, composing the western part of the State, were made the new State of West Virginia. By an act of Congress in 1866, consent was given to the transfer of two additional counties from Virginia to West Virginia.

The Legislatures of Virginia in 1873 and West Virginia in 1877 authorized the appointment of commissions for "ascertaining and locating" the boundary between the two States wherever it was in dispute. Commissions were appointed, and an officer from the U.S. Army Corps of Engineers was detailed to aid in the work. So far as can be learned, the survey and marking of this boundary were never undertaken, and its location can be found only by following the old county

lines, descriptions of which are given in the Virginia statutes. (See West Virginia, p. 96.)

References to the statutes by which the counties of Virginia and West Virginia were created can be found in an article by Morgan P. Robinson (1916). Most of the counties were created prior to 1800, and the references are to Hening's Statutes at Large of Virginia, but there have been many changes since that year.

The Grand Assembly of Virginia, in 1660, enacted that (Hening, 1821, v. 2, p. 18)

For the prevention of frequent suits and differences . . . all counties . . . shall . . . be limited within certain natural bounds . . . and where natural bounds are wanting to supply that defect by marked trees, which are to be viewed and renewed every three years by the nearest bordering inhabitants of each county and parish in Easter week.

WEST VIRGINIA

The separation of West Virginia from Virginia was approved by act of Congress of December 31, 1862 (12 Stat. L. 633), and the new State was admitted to the Union by presidential proclamation dated April 20, 1863, effective June 19, 1863 (13 Stat. L. 731). It is of historical interest that the name proposed for this State by the convention of 1861 was Kanawha.

It originally contained the following counties: Barbour, Boone, Braxton, Brooke, Cabell, Calhoun, Clay, Doddridge, Fayette, Gilmer, Greenbrier, Hampshire, Hancock, Hardy, Harrison, Jackson, Kanawha, Lewis, Logan, McDowell, Marion, Marshall, Mason, Mercer, Monongalia, Monroe, Morgan, Nicholas, Ohio, Pendleton, Pleasants, Pocahontas, Preston, Putnam, Raleigh, Randolph, Ritchie, Roane, Taylor, Tucker, Tyler, Upshur, Wayne, Webster, Wetzel, Wirt, Wood, and Wyoming. In 1866, with the consent of Congress,¹⁰ West Virginia was enlarged by the two counties of Berkeley and Jefferson, transferred from Virginia.

The boundary between West Virginia and Virginia is made up of the boundary lines of the counties above enumerated that border on Virginia and can be defined only by reference to the laws by which these counties were created (Hening, 1821, v. 2, p. 184).

The two States entered into a compact to define their common boundary separating Monroe County, West Virginia, and Allegheny County, Virginia. There had been uncertainty concerning this line for many years.

* See 148 U.S. 528. For historical description and plat of the line, consult records of the court for the October term, 1891; for geographic positions on the line, see p. 111. For report of commissioners who surveyed the line in 1901-2, see 190 U.S. 64. For original maps of this survey, see register 2634 of the archives of the Supreme Court. For reference to the Bristol cession, see p. 110.

¹⁰ 14 Stat. L. 350. See 11 Wallace 39 for a historical sketch of this addition and court decisions relating thereto.

BOUNDARIES OF THE UNITED STATES AND THE SEVERAL STATES

The two commissions that were appointed met jointly and agreed upon a definition of the boundary. Their recommendations were adopted by the States in 1959. The boundary is thus described (U.S. 86th Cong., 1st sess., H. Rept. 7474):

*** Beginning at the top of Peters mountain, where the road crosses, corner common to Monroe county, West Virginia and Craig county, Virginia and on the Alleghany county-Virginia line where the Sweet Springs-Fincastle road crosses Peters mountain, thence in a straight line to the present state line concrete marker on highway route number three hundred eleven; thence in a straight line to the present state line highway marker on upper highway route number six hundred three (Slaty road or Big Ridge road); thence in a straight line to the Greenbrier county line on top of Alleghany mountain at a point on Fletchers Knob previously established by the West Virginia-Virginia boundary commission being approximately longitude eighty degrees eighteen and one-half minutes west and latitude thirty-seven degrees forty-one and one-half minutes north, at a scaled elevation of three thousand one hundred fifty feet.

Congress gave its consent on September 21, 1959 (73 Stat. 599).

In the constitution of 1872, after a recapitulation of the counties transferred from Virginia to West Virginia, is found the following clause defining the boundaries on the south and west (Thorpe, 1909, v. 7, p. 4034):

The State of West Virginia includes the bed, bank, and shores of the Ohio River and so much of the Big Sandy River as was formerly included in the Commonwealth of Virginia; and all territorial rights and property in, and jurisdiction over the same, heretofore reserved by and vested in the Commonwealth of Virginia, are vested in and shall hereafter be exercised by the State of West Virginia. And such parts of the said beds, banks, and shores as lie opposite and adjoining the several counties of this State, shall form parts of said several counties, respectively.

For a history of the boundaries of West Virginia, see Pennsylvania, page 83; Maryland, page 86; and Virginia, page 95.

NORTH CAROLINA

In the year 1663 the "first charter" of Carolina was granted, which in 1665 was followed by the "second charter." The following extracts from these two charters (Thorpe, 1909, v. 5, p. 2744) define the boundaries.

CHARTER OF 1663

*** all that territory or tract of ground situate lying and being within our dominions of America, extending from the north end of the island called Lucke island, which lieth in the southern Virginia seas, and within six and thirty degrees of the northern latitude, and

to the west as far as the south seas, and so southerly as far as the river St. Matthias, which bordereth upon the coast of Florida, and within one and thirty degrees of northern latitude, and so west in a direct line as far as the south seas aforesaid.

CHARTER OF 1665

*** All that province, territory, or tract of land, situate, lying or being within our dominions of America aforesaid; extending north and eastward, as far as the north end of Curruck river, or inlet, upon a strait westerly line to Wyonoak creek, which lies within or about the degrees of thirty-six and thirty minutes, northern latitude; and so west in a direct line as far as the South Seas. *** and south and westward, as far as the degrees of twenty-nine, inclusive, of northern latitude; and so west, in a direct line, as far as the South Seas: ***

The second charter fixed the northern boundary at approximately the present location of the northern boundary of North Carolina.

Because of the great distance between the settlements in the northern and southern parts of the Province, there was for many years a governor for each part. This condition finally resulted in the creation of separate Provinces, which became in full effect in 1729.¹¹ Disputes regarding the division line commenced as early as 1732 and were not finally settled until 1813. In 1815 the unmarked part of the line was surveyed and marked, and the location was ratified by the legislature the same year. (Copper, 1836, p. 406-410.)

The following are positions for road crossings on the North Carolina-South Carolina line (Gannett, 1905, p. 88-89; 1907, p. 65-66; R. B. Marshall, 1914, p. 281; Birdseye, 1923, p. 877):

Latitude (N.)	Longitude (W.)
33°53'24.9"	78°35'13.3"
34°59'39.0"	80°50'02.4"
35°04'29.0"	80°59'21.3"
35°03'41.5"	80°59'29.7"
35°09'01.5"	81°03'28.1"
35°09'28.4"	81°11'52.0"
35°10'17.8"	81°32'17.1"

In the constitution of North Carolina, adopted in 1776, this line is defined as stated in the subjoined extract (Thorpe, 1909, v. 5, p. 2789):

*** beginning on the sea side at a cedar stake, at or near the mouth of Little River (being the southern extremity of Brunswick county) and running from thence a northwest course, through the boundary house, which stands in thirty-three degrees fifty-six minutes, to thirty-five degree north latitude, and from thence a west course so far as is mentioned in the charter of King Charles the Second to the late Proprietors of Carolina. Therefore, all the territories, seas, waters, and harbours, with their appurtenances, lying between the line above described, and the southern line of the State of Virginia, which begins on the sea shore, in thirty-six degrees thirty minutes north latitude, and from thence runs west, agreeable to the said Charter of King Charles, are the right and property of the people of this State, to be held by them in sovereignty; any partial line, without the consent of the Legislature of this State, at any time thereafter directed or laid out in anywise notwithstanding.

¹¹ In 148 U. S. 506, the date on which the separation was approved by the Crown is given as 1732, but 1729 is the date given in "South Carolina Resources and Population," p. 425, State Board of Agriculture, 1883. See also Mills (1826, p. 182, esp. 34).

... And provided also, That it shall not be construed so as to prevent the establishment of one or more governments westward of this State, by consent of the Legislature: * * *

On December 2, 1789, the Legislature of North Carolina passed an act ceding to the United States the western lands now constituting the State of Tennessee. (See fig. 21.) On February 25, 1790, the deed was offered, and on April 2, 1790, it was accepted by the United States.

In the Revised Statutes of North Carolina the boundaries of the State are described as follows: The north boundary, the parallel of $36^{\circ}30'$; the south boundary, a line running northwest from Goat Island, on the coast in lat $33^{\circ}56'$ N., to the parallel of 35° and thence along that parallel to Tennessee; and the west boundary is the Smoky Mountains. The intention had been from the earliest colonial times to establish the northern boundary upon the parallel of $36^{\circ}30'$. This is the wording of every legislative act relating to it, and the errors of this boundary are due simply to errors in surveying.

The following description of the boundary lines of this State and of the various attempts made to locate them is taken from the report of the North Carolina Geological Survey (Kerr, 1875, v. 1, p. 2-4):

The first and only serious attempt to ascertain the northern boundary was that made in 1728 by Col. Wm. Byrd and others, commissioners on the part of the two colonies, acting under royal authority. From the account given by Byrd of this undertaking, it appears that they started from a point on the coast whose position they determined by observation to be in $36^{\circ}31'$ north latitude, and ran due west (correcting for the variation of the compass, to Notoway [Blackwater] River, where they made an offset)¹² of a half mile to the mouth of that stream, again running west. The line was run and marked 242 miles from the coast, in a point in Stokes County, on the upper waters of the Dan River (on Peter's Creek), the North Carolina commissioners accompanying the party only about two-thirds of the distance. Beyond this point the line was carried some 90 miles by another joint commission of the two colonies in 1749; this survey, terminating at Steep Rock Creek, on the east of Stone Mountain, and near the present northwest corner of the State, estimated to be 329 miles from the coast. In 1779 the line was taken up again at a point on Steep Rock Creek, determined by observation to be on the parallel of $36^{\circ}30'$ (the marks of the previous survey having disappeared entirely), and carried west to beyond Bristol, Tenn. This last is known as the Walker line (see p. 95), from one of the commissioners of Virginia.

These lines were run and the latitude observations taken with very imperfect instruments, and the variation of the compass was little understood, so that it was not possible to trace a parallel of latitude. The line, besides was only marked on the trees and soon disappeared, and as the settlements were very scattered, the location soon became a matter of vague tradition and presently of contention and litigation, so that in 1858, at the instance of Virginia commissioners were appointed to relocate the line from the end of the Byrd survey westward; but for some reason they did not act. In 1870 commissioners were again appointed by Virginia and similar action asked on the

part of this State; and the proposition was renewed in 1871, but ineffectually as before. In all these numerous attempts to establish the line of division between the two colonies and States the intention and the specific instructions have been to ascertain and mark, as the boundary of the two States, the parallel of $36^{\circ}30'$. The maps published toward the end of the last century by Jefferson and others give that parallel as the line, and the Bill of Rights of North Carolina claims that "all territory lying between the line above described (the line between North and South Carolina) and the southern line of the State of Virginia, which begins on the seashore in $36^{\circ}30'$ north latitude, and from thence runs west, agreeably to the charter of King Charles, are the right and property of this State." But it appears from the operations of the United States Coast Survey at both ends of the line that the point of beginning on Currituck Inlet, instead of being, as so constantly assumed, in latitude $36^{\circ}30'$, or as determined by the surveyors in 1728, $36^{\circ}31'$, is $36^{\circ}33'15''$, and the western end (of "the Walker line," of 1779, at Bristol, Tenn.), $36^{\circ}34'25.5''$. [See p. 95 for later data.] It is stated in Byrd's Journal that the variation of the compass was ascertained to be a little less than 3° W. And no account is given of any subsequent correction, and if none was made at the end of the line surveyed by him the course would have been in error by nearly 3° , as the amount of variation in this State changes a little more than 1° for every 100 miles of easting and westing. So that the northern boundary of the State as run is not only the parallel of $36^{\circ}30'$, but is far from coincident with any parallel of latitude and must be a succession of curves, with their concavities northward and connected at their ends by north and south offsets.

The southern boundary between this State and South Carolina and Georgia was first established by a joint colonial commission in 1735 to 1746. The commissioners ran a line from Goat Island on the coast (in latitude $33^{\circ}56'$ as supposed), northwest to the parallel of 35° , according to their observations, and then due west to within a few miles of the Catawba River, and here, at the old Salisbury and Charleston road, turned north along that road to the southeast corner of the Catawba Indian lands. This line, resurveyed in 1764, was afterward (in 1772) continued along the eastern and northern boundaries of the Catawba lands to the point where the latter intersects the Catawba River; thence along and up that river to the mouth of the South Fork of the Catawba, and thence due west, as supposed, to a point near the Blue Ridge. This part of the line was resurveyed and confirmed by commissioners under acts of Assembly of 1803, 1804, 1806, 1813, 1814, and 1815, and continued west to and along the Saluda Mountains and the Blue Ridge to the intersection of the "Cherokee boundary" of 1797, and thence in a direct line to the Chatahoque River at its intersection with the parallel of 35° . From this point the line was run west to the Tennessee line, between this State and Georgia, in 1807,¹³ confirmed and established by act of 1819.

The boundary between this State and Tennessee was run according to the course designated in the act of 1789, entitled "An act for the purpose of ceding to the United States certain western lands therein described" (the State of Tennessee)—that is, along the crest of the Smoky Mountains, from the Virginia line to the Catalauche River (in Haywood County). In 1799, under act of 1796, it was continued from this point to the Georgia line in 1821. The commissioners who completed this line, at the date last mentioned, instead of following their instructions, diverged from the crest of the Smoky (Unaka) Mountains

¹² This break in the line is in accordance with an agreement made in 1727 between the governors of the two colonies. Its measured length is 2,977 feet. For text of the agreement and abstract of report of the commissioners who ran part of the line in 1779-80, see 148 U.S. 507-510.

¹³ This is an error. The line was run in 1819.

at the intersection of the Hiwassee turnpike and ran due South¹⁴ to the Georgia line, thereby losing for the State the valuable mining region since known as Ducktown.

And as to the southern boundary, the point of beginning on Goat Island is in latitude 33°51'37", as shown by the Coast Survey, and instead of running from Goat Island northwest to latitude of 35° and thence along that parallel, it appears, from the South Carolina geographical State survey of 1821-1825, that the course from the starting point is N. 47°30' W., and instead of pursuing the parallel of 35°, it turns west about 10 miles south of that line, and then, on approaching the Catawba River, turns northward, pursuing a zigzag line to the forks of the Catawba River, which is about 12 miles north of that parallel; and from this point to the mountains the boundary line (of 1772) runs, not west, but N. 88° W., bringing its western end about 17 miles too far north and reaching the (supposed) parallel of 35° at a distance of about 130 miles west of the Catawba River. The loss of territory to the State resulting from these singular deviations is probably between 500 and 1,000 square miles.

The U.S. Geological Survey has determined several approximate positions for points on the North Carolina-Virginia line, three of which are as follows:

Latitude (N.)	Longitude (W.)
36°32'42.6"	77°31'50"
36°32'29.6"	79°24'00"
36°32'21.9"	79°29'19"

Four latitude stations were established near the east end of this line by the U.S. Coast and Geodetic Survey in 1886-87. (For descriptions, see Beall, 1925, p. 228.)

In 1972 the States of Virginia and North Carolina agreed to define their mutual seaward boundary as extending east along the parallel of latitude passing through the point where the land boundary meets the low-water mark of the Atlantic Ocean. Congress approved the boundary agreement and instructed the Secretary of Commerce to have the latitude of the line determined and so much of the land boundary marked as is necessary (86 Stat 1298).

In 1934 the U.S. Coast and Geodetic Survey determined the position of boundary monument 1 to be: lat 36°33'00.8" N, long 75°52'46.2" W. (1927 N.A.D.). This monument is about 0.5 mile from the shoreline. The land boundary would meet the shoreline at the same latitude, as the next monument to the west is at this latitude.

The following extract from the Tennessee constitution of 1796 defines the eastern boundary of that State, which is the western boundary of North Carolina, as it was intended to be run and marked (Thorpe, 1909, v. 6, p. 3424):

¹⁴Probably run on compass meridian; the line as marked actually runs about 6° west of true south.

Beginning on the extreme height of the Stone Mountain at the place where the line of Virginia intersects it, in latitude thirty-six degrees and thirty minutes north; running thence along the extreme height of the said mountain to the place where Watauga River breaks through it; thence a direct course to the top of the Yellow Mountain, where Bright's road crosses the same; thence along the ridge of said mountain, between the waters of Doe River and the waters of Rock Creek, to the place where the road crosses the Iron Mountain; from thence along the extreme height of said mountain to where Nolichucky River runs through the same; thence to the top of the Bald Mountain; thence along the extreme height of said mountain to the Painted Rock, on French Broad River; thence along the highest ridge of said mountain to the place where it is called the Great Iron or Smoky Mountain; thence along the extreme height of said mountain to the place where it is called Unicoi or Unaka Mountain between the Indian towns of Cowee and Old Chota; thence along the main ridge of the said mountain to the southern boundary of this State, as described in the act of cession of North Carolina to the United States of America.

Commissioners appointed by authority of the Legislature of North Carolina surveyed and marked a part of the Tennessee line in 1799. Beginning at the Virginia line they ran southwestward along the crest of the mountains to the highest pinnacle of the Smoky Mountains beyond the French Broad River, where they stopped. Neither Tennessee nor the United States was represented in this survey. A certified copy of the field notes was given to Tennessee in 1803, but it does not appear that the line as run was ratified by either State. North Carolina was, however, apparently bound by the action of its commissioners.

In 1819 North Carolina authorized the extension of the line of 1799 (Laws of North Carolina for 1819, chap. 11) and in 1820 Tennessee took like action. The line was completed to the Georgia State line, and the extension was formally ratified by both States in 1821. The original map for the 1821 survey of the North Carolina-Tennessee line is said to be in the State archives in Nashville.

In 1885 commissioners were appointed to rerun the part of the line of 1799 from Iron Mountain at Indian Grove Gap to the point where the Jonesboro and Asheville road passes over Bald Mountain. The line was run in 1886, but the commissioners failed to agree on a part of the line about 6 miles long near the Nolichucky River. The North Carolina commissioner followed as closely as possible the survey of 1799, but the Tennessee commissioner insisted on a line about a mile farther east. The report of the North Carolina commissioner is given in full in Document 22 of the North Carolina Legislature, session of 1887. No further action appears to have been taken by either State toward a settlement of this dispute, but in 1915 a suit involving the proper location of the boundary was decided in the Tennessee Supreme Court in favor of the line as marked by the North Carolina commissioner (Thompson, 1916, v. 7, p. 35-66).

The commissioners who surveyed the southern part of the west boundary of North Carolina in 1821 de-

pendent almost entirely on blazes on trees for their marks, and, although they did not run out the line as described by statute, the entire line as marked was accepted by the legislatures of the two States.

In recent years many disputes regarding the exact location of parts of the line have arisen, and they were finally taken to the Supreme Court of the United States. Commissioners appointed to re-mark the boundary filed their report October 29, 1915, having re-marked the line from the point where it first intersects the Little Tennessee River down the north side of the river about half a mile, thence across the river and up Slickrock Creek to a point near the mouth of Big Stack Gap Branch, thence up a ridge leading to Big Fodderstack Mountain, thence along the main ridge to a place locally known as "County Corners," thence along State Ridge to the Tellico River, thence in a south-westerly course to the top of Jenks Knob. South of this point sufficient marks of the survey of 1821 were known to fix the line as above described.¹³

The approximate position for the southwest corner of North Carolina and the southeast corner of Tennessee at a point on the Georgia line is lat 34°59'17" N., long 84°19'19" W.

In 1879 the legislature passed an act to appoint commissioners to make a survey from the northeast corner of Georgia westward. This point of commencement is common to North Carolina, South Carolina and Georgia.

In 1881 the legislature passed another act providing for the appointment of a commissioner, who should act with commissioners from Virginia, South Carolina, Georgia, or Tennessee, to rerun and re-mark the boundaries between North Carolina and the other States.

In 1888 a joint commission reran the Byrd line of 1728 between the ocean at Currituck Inlet and the Nottoway (now Blackwater) River, a distance of 59½ miles.¹⁴ 28 appropriately marked granite monuments were established, and astronomic determinations of latitude were made for five of them, as follows (the longitudes are approximate):

Monument 2, Knott Island, lat 36°32'59" N., long 75°55.7' W.

Monument 7, Northwest River, lat 36°33'00" N., long 76°11.6' W.

Monument 11, Dismal Swamp Canal, lat 36°33'02" N., long 76°22.7' W.

Monument 13, lat 36°33'01" N., long 76°33.5' W.

Monument 28, Nottoway (now Blackwater) River, lat 36°32'36" N., long 76°56' W.

¹³ See 235 U.S. 3-17 for the decision of the court, which includes a historical description of the line and extracts from the field notes of the 1821 survey, and 240 U.S. 552 for report of commissioners. See Williams (1920) for description of the survey of this line.

¹⁴ See North Carolina Pub. Doc. 21, sess. of 1889, for a full report.

SOUTH CAROLINA¹⁷

The territory within the present State of South Carolina was included in the charter of Carolina, which also embraced what is now the State of Georgia. (See North Carolina, p. 96.)

The settlement of Carolina under the charter of 1665 had been carried on from two points, and

While there had been no formal division of the domain into distinct territories, these settlements at the two points had at first distinct governments; and the northern portion had gradually acquired the informal designation of North Carolina; the southern that of South Carolina [McGrady, 1899, p. 3].

In 1719 there was a concerted revolt by the southern settlements against the proprietary government of Carolina, but not until 1729 was the separation of the two colonies formally recognized by the Parliament of Great Britain.

For a history of the settlement of the boundary between North Carolina and South Carolina, see North Carolina, page 96.

By the charter of Georgia (1732) the line between South Carolina and Georgia was to be the Savannah River to its head. In 1762, difficulties having arisen concerning the interpretation of the charter, the head of the Savannah, and the title to the lands south of the Altamaha River claimed by South Carolina, Georgia made complaint to the King, who issued a proclamation in 1763 giving the lands between the Altamaha and St. Marys Rivers to Georgia. The question of the boundary on the Savannah, however, remained unsettled until 1787, when a convention between the two States was held at Beaufort, S.C., to determine it, and the line was fixed as at present. (See fig. 22.) The following is an extract from the article of agreement (1 Stat. L. 466):

The most northern branch or stream of the river Savannah from the sea or mouth of such stream to the fork or confluence of the rivers now called Tugaloo and Keowa, and from thence the most northern branch or stream of the said river Tugaloo till it intersects the northern boundary line of South Carolina, if the said branch or stream of Tugaloo extends so far north, reserving all the islands in the said rivers Savannah and Tugaloo to Georgia; but if the head spring or source of any branch or stream of the said river Tugaloo does not extend to the northern boundary line of South Carolina, then a west line to the Mississippi, to be drawn from the head spring or source of the said branch or stream of Tugaloo River which extends to the highest

¹⁷ For copies of laws, reports of commissioners, and references to documents relating to the boundary lines of this State from 1576 to 1815, see Cooper (1836, p. 404-421).

northern latitude, shall forever hereafter form the separation, limit, and boundary between the States of South Carolina and Georgia.

In the same year South Carolina ceded to the United States a strip of territory which she claimed, about 12 or 14 miles wide, south of the North Carolina line and extending from the source of the Chattooga River to the Mississippi. South Carolina's claim to this narrow strip south of the 35th parallel was based on inadequate geographic information. It was no doubt believed that the source of the "most northern branch or stream of the said river Tugaloo" was some distance south of the North Carolina line, but recent surveys show that the headwaters of the Chattooga, which is a branch of the Tugaloo, are north of the 35th parallel and within the limits of North Carolina. (See U.S. Geol. Survey map of the Cowee quadrangle, N.C.-S.C.) Although South Carolina thus had no right to claim this strip, later disputes regarding it were made impossible by its cession to the United States in 1787 and the cession of the eastern part to Georgia by the United States in 1802. (See Georgia, below).

In 1917 the Legislature of Georgia authorized the bringing of suit in the Supreme Court of the United States in order to settle a long-standing dispute between that State and South Carolina regarding their common boundary. The court decision, rendered January 30, 1922, is in part as follows (see 257 U.S. 517 and 259 U.S. 572):

(1) Where there are no islands in the boundary rivers the location of the line between the two States is on the water midway between the main banks of the river when the water is at ordinary stage; (2) where there are islands the line is midway between the island bank and the South Carolina shore when the water is at ordinary stage; and (3) that islands in the Chattooga River are reserved to Georgia as completely as are those in the Savannah or Tugaloo rivers.

GEORGIA

Georgia was included in the proprietary charter granted to the lords proprietors of Carolina in 1662 and 1663, for which a provincial charter was substituted in 1719.

In 1732 the charter of Georgia as an independent colony was granted by King George II. The following is an extract (Thorpe, 1909, v. 2, p. 771):

"... all those lands, countries, and territories situate, lying and being in that part of South Carolina, in America, which lies from the most northern part of a stream or river there, commonly called the Savannah, all along the sea coast of the southward, unto the most southern stream of a certain other great water or river called the Altamaha,

and westerly from the heads of the said rivers, respectively, in direct lines to the south seas, ... with the islands of the sea, lying opposite to the eastern coast of the said lands, within twenty leagues of the same.

This charter was surrendered in 1752, and a provincial government was established.

In 1763 the territory between the Altamaha and St. Marys Rivers was added to Georgia by royal proclamation. (See South Carolina, p. 99.)

In the constitution adopted by Georgia in 1798 the boundaries are thus described (see fig. 22) (Thorpe, 1909, v. 2, p. 794):

The limits, boundaries, jurisdictions, and authority of the State of Georgia do, and did, and of right ought to extend from the sea or mouth of the river Savannah, along the northern branch or stream thereof, to the fork or confluence of the rivers now called Tugaloo and Keowee, and from thence along the most northern branch or stream of the said river Tugaloo, till it intersect the northern boundary line of South Carolina, if the said branch or stream of Tugaloo extends so far north, reserving all the islands in the said rivers Savannah and Tugaloo to Georgia; but if the head, spring, or source of any branch or stream of the said river Tugaloo does not extend to the north boundary line of South Carolina, then a west line to the Mississippi, to be drawn from the head, spring, or source of the said branch or stream of Tugaloo River, which extends to the highest northern latitude; thence down the middle of the said river Mississippi until it shall intersect the northernmost part of the thirty-first degree of north latitude, south by a line drawn due east from the termination of the line last mentioned, in the latitude of thirty-one degrees north of the equator to the middle of the river Apalachicola or Chatahoochee; thence along the middle thereof, to its junction with Flint River; thence straight to the head of Saint Mary's River, and thence, along the middle of Saint Mary's River, to the Atlantic Ocean, and from thence to the mouth or inlet of Savannah River, the place of beginning, including and comprehending all the lands and waters within the said limits, boundaries, and jurisdictional rights; and also all the islands within twenty leagues of the seacoast.

In 1802 articles of agreement were entered into whereby Georgia ceded to the United States the lands west of its present boundaries, and the United States ceded to Georgia the eastern part of the South Carolina cession of 1787. (See South Carolina, above.)

The following extracts (Georgia act of Apr. 24, 1802) show the limits of the two cessions:

The State of Georgia cedes to the United States all the right, title, and claim which the said State has to the jurisdiction and soil of the lands situated within the boundaries of the United States, south of the State of Tennessee and west of a line beginning on the western bank of the Chatahoochee River where the same crosses the boundary line between the United States and Spain; running thence up the said River Chatahoochee, and along the western bank thereof to the great bend thereof, next above the place where a certain creek or river, called "Uchee" (being the first considerable stream on the western side, above the Cussetas and Coweta towns), empties into the Chatahoochee River; thence in a direct line to Nickelsack, on Tennessee River; thence crossing the said last-mentioned river, and thence running up the said Tennessee River and along the western bank thereof to the southern boundary line of the State of Tennessee.

The United States ... cede to the State of Georgia ... the lands ... situated south of the southern boundaries of the States of

Tennessee, North and South Carolina, and east of the boundary line herein above described as the eastern boundary of the territory ceded by Georgia to the United States.

For lands ceded to the United States, Georgia was to be paid \$1,250,000 from the net proceeds of land to be sold. (Donaldson, 1884, p. 80.)

For a history of the boundary between Georgia and South Carolina, see South Carolina, page 99.

The history of the boundary between North Carolina and Georgia has already been given. (See p. 97.) It may be proper, however, to add that this line (the 35th degree of north latitude) was fixed by the cession, above detailed, from the United States to Georgia of that part of the South Carolina cession east of the present western boundary of Georgia.

A long controversy ensued between Georgia and North Carolina regarding the boundary, with no results until 1810, when Georgia empowered its governor to employ Andrew Ellicott to ascertain the true location of the 35th degree of latitude. Ellicott did so, and the point fixed by him was approved by both States. (Cobb, 1851, p. 150.)

The boundary between Georgia and Tennessee, established in 1818, is described as follows:¹⁴

¹⁴ Tennessee Laws, 1817-1820, v. 2, p. 475; Georgia Laws, 1818-1819, p. 1217, see also Haywood, 1823, p. 13. The description given by Haywood differs slightly in wording from the others, but the essential features are the same. A copy of the map of the survey is on file in the office of the Georgia Secretary of State, Surveyor General Department.

Beginning at a point in the true parallel of the thirty-fifth degree of north latitude, as found by James Camak, mathematician on the part of the State of Georgia, and James S. Gaines, mathematician on the part of the State of Tennessee, on a rock about two feet high, four inches thick, and fifteen inches broad, engraved on the north side thus: "June 1st, 1818; var. 6 1/4 east," and on the south side thus: "Geo. lat. 35 north: J. Camak," which rock stands one mile and twenty-eight poles from the south bank of the Tennessee river, due south from near the center of the old Indian town of Nickajack, and near the top of the Nickajack Mountain, at the supposed corner of the states of Georgia and Alabama; thence running due east, leaving old D. Ross two miles and eighteen yards in the State of Tennessee, and leaving the house of John Ross about two hundred yards in the State of Georgia, and the house of David McNeill one mile and one-fourth of a mile in the State of Tennessee, with blazed and mile-marked trees, lessening the variation of the compass by degrees, closing it at the termination of the line on the top of the Unicoi Mountain at five and one-half degrees.

Another line for the boundary between Georgia and Tennessee, based on new observations for latitude, was run in 1826 by James Camak, along a parallel about 37.9 chains north of the line run by him in 1818, but apparently it was not accepted by either State as the true line. Attempts have been made by Georgia to have the line relocated, but the line as run

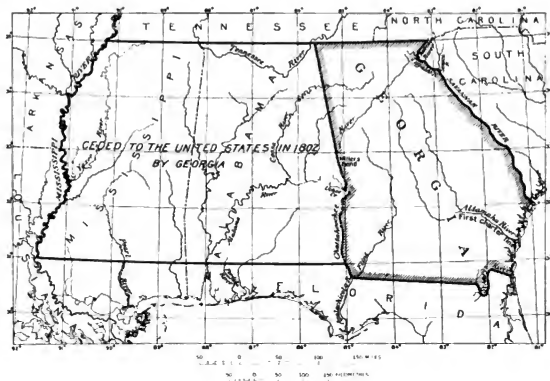


FIGURE 22.—
Historical diagram of
Georgia.

in 1818 still stands as the accepted boundary, although in places it is a mile south of the 35th parallel.

The Georgia Code Annotated, Sec. 15-103, gives this description for the Georgia and North Carolina and the Georgia and Tennessee boundaries: "The boundary between Georgia and North Carolina and Georgia and Tennessee shall be the line described as the 35th parallel of north latitude, from the point of its intersection by the River Chattooga west to the place called Nickajack" (Ga. Laws 1887, p. 105).

In 1971 a boundary commission was appointed by the Georgia Legislature to study and relocate this 35th parallel of north latitude. Cooperation with the States of North Carolina and Tennessee was sought without success. A hearing was held that year before the National Oceanic and Atmospheric Administration in Rockville, Maryland. Georgia was commended for her research and accurate data. The commission was abolished in 1972.

The present boundary between South Carolina and Georgia is thus described (James, 1876, p. 120):

Beginning at the mouth of the Savannah River: along the river to the junction of the Kiowee, and along the Tugaloo to the junction of the Talula and Chattooga; thence along the Chattooga to a point on the 35th parallel of north latitude, at the union of the northern boundary of South Carolina and the southern boundary of North Carolina. The general course is about N. 35° W., and the length, in a direct line, about 247 miles. It terminates at Ellicott's Rock, on the Chattooga River, marked "Lat. 35°, A.D. 1813, N.C., S.C."

This line, in conformity with the treaty of Beaufort, separates Georgia from South Carolina (all the islands of the river Savannah, Tugaloo, and Chattooga being reserved to Georgia) (259 U.S. 516).

The boundary between Georgia and Florida was fixed by the treaty of 1783, between the United States and Great Britain, substantially as at present, namely:

Commencing in the middle of the Apalachicola or Catasouche River, on the thirty-first degree of north latitude; thence along the middle thereof to its junction with the Flint River; thence straight to the head of Saint Marys River, and thence down the middle of that river to the Atlantic Ocean.

This boundary was affirmed by the treaty of 1795 between the United States and Spain.

In 1799 Andrew Ellicott, as commissioner for the United States, was directed to survey and mark this line from the Mississippi to the Atlantic Ocean (fig. 23). From a point near the Mississippi, determined by him as on the 31st parallel, he ran a line due east to a point near the mouth of the Flint River, the latitude of which he determined as 30°42'42.8" N., where he was



FIGURE 23.—Ellicott's Stone, a 2½-foot-high sandstone marker located a few miles north of Mobile, Alabama, has been designated a National Historical Civil Engineering Landmark by the American Society of Civil Engineers. It is the only visible reminder of a famous boundary survey made in 1799, led by Mai. Andrew Ellicott, which established the 31st parallel border between the United States and West Florida. (Photograph courtesy of the American Society of Civil Engineers.)

forced to stop work because of hostile Indians. He then proceeded by water to the St. Marys River and up that river to what he took to be the source of its longest branch, where he erected a large mound, the latitude of which he reported as "about 30°34' N." (Ellicott, 1814).²⁹

Ellicott's line along the 31st parallel marked the boundary between the United States and the Spanish possessions in Florida. "Ellicott's stone," on this line (see fig. 23), is the initial point of the St. Stephens meridian and base line of the public land surveys. Its geodetic position is: lat 30°59'51.463" E., long 88°01' 21.076" W. (1927 N.A.D.).

The line joining these two marks had not yet been surveyed when Spain ceded the Floridas to the United States in 1819. The uncertainty regarding the position of this boundary was the cause of many disputes, which became more acute as the country became more thickly settled. Georgia claimed that the headwaters of the St. Marys were at the source of a southern branch. This claim if conceded would give additional territory to that State variously estimated at 800 to 2,355 square miles. On the other hand, the U.S. commissioners maintained that the real source of the St. Marys was 2 miles north of the Ellicott mound.

Apparently Georgia, at least temporarily, accepted the Ellicott mound as the proper eastern terminus of the

²⁹ Ellicott's journal relating to this survey, including maps, was published in 1803 by Budd & Bertram, for Thomas Dobson, at the Stone House, 41 South Second Street, Philadelphia, and again in 1814 by William Fry, of Philadelphia. Second edition published 1962, by Quadrangle Books, Inc., Chicago.

straight boundary, and in 1820 had the "Watson line" run between the two marks established by Ellicott.

In 1825 a second line was run by D. F. McNeil, a contract surveyor for the U.S. General Land Office, and this line although not formally accepted by the General Land Office, was looked upon for more than 20 years as the proper location of the boundary.

In 1826 Congress authorized the survey and marking of a line which

shall be run straight from the junction of said rivers Chatahoochie and Flint to the point designated as the head of Saint Marys River.

Georgia, not content with the McNeil line, continued to press her claims and in 1827 passed an act forbidding any surveys of public land in the disputed territory (south of the Ellicott mound line) without authority of law.

In 1846 both Georgia and Florida consented to the appointment of commissioners who should fix the boundary, and this action resulted in 1859 in the running of the "Orr and Whitner line" between the mouth of the Flint River and the Ellicott mound on the St. Marys. The line as then marked was accepted by Florida in 1861 and by Georgia in 1866.

All three lines described are indicated on township plats of the General Land Office in Florida book 43.⁷⁰

The southern boundary of Georgia is thus described (James, 1876, p. 121; Georgia Code, 1873, p. 7; Florida Code, 1872):

Thence down the western bank of the river [Chatahoochee] at high water mark to its junction with Flint River, at a point now four chains below the actual junction—latitude $30^{\circ}42'42''$, longitude $80^{\circ}53'15''$. The average direction of this line is about S. 6° E., and distance about 150 miles direct. About 130 miles it separates Georgia from Alabama, and the remaining 20 miles from Florida.

Thence along Orr and Whitner's line, S. $87^{\circ}17'22''$ E. (average direction), 158-28/80 miles, to a point 37 links north of Ellicott's mound, on St. Marys River.

In 1970, the States of Georgia and Florida agreed to extend their common boundary into the Atlantic. The provisions of the agreement call for a line beginning at a point 37 links (a link is 1/100 of a chain, which is 66 feet) north of Ellicott's mound. Thence the boundary continues down the center of the river to the ocean; thence along the middle of the presently existing St. Marys entrance navigation channel to the point of intersection with a hypothetical line connecting the seaward extremities of the jetties now protecting the channel; thence in continuation to a control point (lat $30^{\circ}42'45.6''$ N., long $81^{\circ}24'15.9''$ W.); and thence due east to the line as now or hereafter fixed by Congress as the seaward limit of Georgia and Florida; such boundary was to be extended on the same true

90° bearing so far as a need for further delineation may arise. The boundary was approved by Congress on October 22, 1970. Congress instructed the Secretary of Commerce to survey and properly mark the line by suitable monuments, and also so much of the interior boundary as is considered necessary by the two States (84 Stat 1094).

The reference to the boundary following the west bank of the Chatahoochee is erroneous. The Georgia Supreme Court, in 1930, stated that the boundary between Georgia and Florida follows the middle of the river (Southeastern Reporter, 1930, v. 154, p. 255). The court cited the treaties of 1783, between the United States and Great Britain, and of 1795 between the United States and Spain, which fixed the National Boundary.

In 1872 Congress passed an act to confirm the titles to land "between the line run by Georgia, known as the Watson line, and the Orr and Whitner line, established as the true boundary between the said States" (Marshall, 1910, p. 170).

The line between Georgia and Alabama was fixed by the act of cession from Georgia to the United States in 1802. (See p. 100.) In 1822-25 Georgia, desiring to have the line run from the Chatahoochee to the point where it strikes the Tennessee line, appointed commissioners for that purpose and requested the cooperation of Alabama and the United States; the latter, however, took no action.

It had been ascertained by actual survey in running the random line that the first great bend in the river next above the mouth of the Uchee, from which a right line would run to Nickajack without touching the river, was the Big Shoal or Millers Bend, and this the commissioners on the part of Georgia contended was the bend at which the line should begin (Georgia Laws, 1826, p. 209).

In this contention the commissioners from Alabama refused to concur; consequently in 1826 the line was run from Nickajack to Millers Bend by the Georgia commissioners alone. Alabama protested against this line and made repeated efforts to reopen negotiations concerning it, to all of which Georgia steadily refused to accede, until finally, January 24, 1840, the Legislature of Alabama passed the following joint resolution:

Resolved, That the State of Alabama will and do hereby, accept as the true dividing line between this State and that of Georgia, the line which was run and marked out by the commissioners of Georgia in

⁷⁰For copies of official documents, Federal and State, relating to this boundary, of dates from 1789 to 1846, see U.S. Congress (1855), a book of more than 400 pages; also see the records in the office of the Secretary of State of Georgia, Surveyor General Department.

1826, beginning at what is called Millers Bend, on the Chattahoochee River; thence along said marked line to Nickajack.

The line is described in the Code of Alabama (1876, p. 189) in the following words:

The boundary line between Alabama and Georgia commences on the west side of the Chattahoochee River at the point where it enters the State of Florida; from thence up the river, along the western branch thereof, to the point on Millers Bend next above the place where the Uchee Creek empties into such river; thence in a direct line to Nickajack.

The description of the western boundary of Georgia follows: (Alabama, 1876, p. 121)

From Nickajack the line between Georgia and Alabama runs south 9°30' east to Millers Bend, on the Chattahoochee River, about 146 miles. Thence down the western bank of the river at high-water mark to its junction with Flint River, at a point now four chains below the actual junction, latitude 30°42'42", longitude 80°53'15". The average direction of this line is about south 6° east, and distance about 150 miles direct.

The U.S. Supreme Court (13 Howard 381 and 23 Howard 505; see also 260 U.S. 628) decreed regarding the river boundary between Georgia and Alabama that The boundary line runs up the river on and along its western bank . . . the water line impressed upon the bank above the slope is the line . . . Both bank and bed are to be ascertained by inspection, and the line is where the action of the water has permanently marked itself upon the soil. . . .

We must reject, altogether, the attempt to trace the line by either ordinary low water or low water. These terms are only predicable of those parts of rivers within the ebb and flow of the tides. . . . The permanent fast-land bank is referred to as governing the line. And where the bank is fairly marked by the water, that water level will show at all places where the line is.

FLORIDA

Florida was originally settled by the Spaniards and was held as a Spanish Province for nearly 200 years. In 1763 it was ceded by Spain to Great Britain, which divided it into the two Provinces of East Florida and West Florida, separated by the Apalachicola River. East Florida had the same northern boundary as the present State (fig. 22), and West Florida at first had a northern boundary on the 31st parallel, but in 1764 the Province was extended northward to the parallel through the mouth of Yassou River (now the Yazoo), said to be in lat 32°28' N (Lowery and McCardle, 1891, p. 108; Donaldson, 1884, p. 108). Geological Survey maps show an old mouth of the Yazoo in lat 32°22' N.

The peace treaty concluded in 1782 between the United States and Great Britain specified the 31st parallel

as the boundary between the United States and West Florida, but by a separate article provided as follows (Malloy, 1910, v. 1, p. 584):

It is hereby understood and agreed that in case Great Britain, at the conclusion of the present war, shall recover or be put in possession of West Florida, the line of north boundary between the said province and the United States shall be a line drawn from the mouth of the river Yassou, where it unites with the Mississippi, due east to the river Apalachicola.

In 1783 Great Britain retroceded Florida to Spain without a definite settlement of the northern boundary of West Florida, which at once became a matter of dispute between the United States and Spain. Spain claimed the territory as far north as the parallel through the mouth of the Yassou; the United States claimed the 31st parallel as the boundary under the treaties of 1782 and 1783, and on that parallel it was fixed by the treaty with Spain signed October 27, 1795. (Chambers, 1898; Fairbanks, 1871, p. 209; Fuller, 1906. See also 13 Howard 406.)

Not only was the northern boundary of West Florida in dispute, but after the Louisiana purchase of 1803 the United States claimed the entire area east to the Perdido River. (See p. 24.) The act of February 12, 1813 (3 Stat. L. 472) authorized the President to occupy that area and appropriate \$20,000 for carrying the act into effect.

Although the Spanish treaty concluded February 22, 1819, was not in full effect until February 22, 1821 (see p. 27), Congress, by act of March 3, 1819 (Stat. L. 523), authorized the President to take possession of the Floridas and to establish a temporary government therein.

By an act approved March 30, 1822 (3 Stat. L. 654), the territory east of the Mississippi River ceded to the United States by Spain was made the Territory of Florida, embracing the same area as the present State. On March 3, 1845, Florida was admitted to the Union as an independent State (5 Stat. L. 742).

For a history of the northern boundary of Florida, see Georgia pages 102, 103.

In 1831 Congress passed an act relating to the boundary between Florida and Alabama (4 Stat. L. 479), from which the following is an extract:

That the President of the United States be, and he is hereby, authorized to cause to be run and marked the boundary line between the State of Alabama and the Territory of Florida, by the surveyors-general of Alabama and Florida, on the thirty-first degree of north latitude.

In 1847 the agreement of commissioners previously appointed by Florida and Alabama was ratified, and the line is described as follows (Florida Acts and Resolutions, 1848, 3d sess., p. 36, Tallahassee):

Commencing on the Chattahoochee River near a place known as "Irwin's Mills" and running west to the Perdido, marked throughout by blazes on the trees; and also by mounds of earth thrown up on the line, at distances of 1 mile, more or less, from each other, and commonly known as the "mound line," or "Ellicott's line."

This line was run in 1799 by Andrew Ellicott. It was retraced and re-marked in 1853-54 by B. F. Whitner, Jr., and again retraced in 1911, by authority of an act of Congress (36 Stat. L. 844) approved June 25, 1910. The examiner in 1911 reported (U.S. Cong., 1911, p. 19) that

Many of the mounds erected by Whitner in reestablishing the Ellicott line are in perfect condition and are the best evidence remaining of the original surveys in the vicinity.

The line between the two States is given in general terms in the Florida Code as follows:

Commencing at the mouth of the Perdido River, from thence up the middle of said river to where it intersects the south boundary line of the State of Alabama and the thirty-first degree of north latitude; then due east to the Chattahoochee River.

In 1953, the States of Florida and Alabama agreed to define their boundary at the mouth of the Perdido River and extend it seaward into the Gulf of Mexico as permitted by the Submerged Lands Act. The compact provided that the boundary should pass through a control point at lat 30°16'53" N., long 87°31'06" W. From this point it runs due north to 30°17'02" N., and due south to a point 1000 feet from the control point. From the north end of this line, the boundary extends up the river in a straight line to a point at lat 30°18'00" N., long 87°27'08" W., and from there to a point on the centerline of the Intracoastal Canal at long 87°27'00" W. The seaward boundary extends S. 0°01'00" W. from the point at the south end of the line through the control point to the seaward limit of each respective State.

Congress approved this agreement on May 6, 1954 (68 Stat. 77).

MISSISSIPPI

By an act approved April 7, 1798 (1 Stat. 549), Congress authorized the establishment of Mississippi Territory, the boundaries of which were thus described:

All that tract of country bounded on the west by the Mississippi, on the north by a line to be drawn due east from the Yazous (now called the Yazoo) to the Chattahoochee; on the east by the Chattahoochee; and on the south by the thirty-first degree of north latitude.

But as jurisdiction over this area was claimed by Georgia, the act provided for the appointment of commissioners to determine and adjust Georgia's claims, which were "declared to be as firm and available as if this act had never been made."

Georgia ceded its rights in this area to the United States in 1802. (See p. 100.) South Carolina having also ceded to the United States its claims to territory west of its present limits, the General Government in 1804, by an act of Congress (2 Stat. L. 305), annexed to the Mississippi Territory the tract of country lying north of the Territory and south of Tennessee and

bounded on the east by Georgia and on the west by Louisiana.

In 1812 the United States added to Mississippi Territory all the lands lying east of the Pearl River, west of the Perdido, and south of the 31st degree of latitude (2 Stat. L. 734). The United States claimed this area as part of the Louisiana Purchase but had acquiesced in its temporary occupancy by Spain. By proclamation dated October 27, 1810, the President declared that possession should be taken on behalf of the United States and directed the Governor of Orleans Territory to assume control of it. (Thorpe, 1909, v. 3, p. 1375.)

By these additions the Mississippi Territory was made to comprise what is now included in Alabama and Mississippi.

On December 10, 1817, the western part of the Mississippi Territory was made a State and admitted into the Union, by resolution of December 10, 1817 (3 Stat. L. 472); its boundaries were (see fig. 24) given in the enabling act of March 1, 1817, as follows²¹:

Beginning on the river Mississippi at the point where the southern boundary of the State of Tennessee strikes the same, thence east along the said boundary line to the Tennessee river, thence up the same to the mouth of Bear Creek, thence by a direct line to the northwest corner of the county of Washington, thence due south to the Gulf of Mexico, thence westwardly, including all the islands within six leagues of the shore, to the most eastern junction of Pearl river with Lake Borgne, thence up said river to the thirty-first degree of north latitude; thence west along said degree of latitude to the Mississippi river; thence up the same to the beginning.

A more detailed description of the boundaries of Mississippi is given in Article 2, Section 3 of the Mississippi Constitution as published in the Mississippi Code of 1972:

The limits and boundaries of the state of Mississippi are as follows, to-wit: Beginning on the Mississippi river (meaning thereby the center of said river or thread of the stream) where the southern boundary line of the state of Tennessee strikes the same, as run by B. A. Ludlow, D. W. Connelly, and W. Petrie, commissioners appointed for that purpose on the part of the state of Mississippi, A. D., 1837, and J. D. Graham and Austin Miller, commissioners appointed for that purpose on the part of the state of Tennessee; thence east along the said boundary line of the state of Tennessee to a point on the west bank of the Tennessee river, six four-pole chains south of and above the mouth of Yellow creek; thence up the said river to the mouth of Bear Creek; thence by a direct line to what was formerly the northwest corner of the county of Washington, Alabama; thence on a direct line to a point ten miles east of the Pascagoula river on the Gulf of Mexico; thence westwardly, including all the islands within six leagues of the shore, to the most eastern junction of the Pearl

²¹ 3 Stat. L. 48.

river with Lake Borgne; then up said Pearl river to the thirty-first degree of north latitude; then west along said degree of latitude to the middle or thread of the stream of the Mississippi river; thence up the middle of the Mississippi river, or thread of the stream, to the place of beginning, including all islands lying east of the thread of the stream of said river, and also including all lands which were at any time heretofore a part of the state.

For further information concerning the eastern boundary, see Alabama, page 109.

In 1819 the line between Mississippi and Tennessee was run by commissioners. In 1833 the Legislature of Tennessee passed an act (Laws of Tennessee, 1833, p. 52) defining the south boundary as the line run in 1830 by John Thompson, commissioner acting for Tennessee, but Mississippi refused to accept the line as thus marked.²² In 1837 the line was again run by commissioners from two States and ratified by the legislatures. The commissioners' report was as follows (Tennessee laws, 1837, p. 27):

Commencing at a point on the west bank of the Tennessee river six four-pole chains south, or above the mouth of Yellow Creek, and about three-quarters of a mile north of the line known as "Thompson's line," and twenty-six chains and ten links north of Thompson's line

²² See Laws of Tennessee for 1833, p. 122, and Resolution 9 for reference to the Walker line.

at the basis meridian of the Chickasaw surveys, and terminating at a point on the east bank of the Mississippi river (opposite Cow Island) sixteen chains north of Thompson's line.

By joint resolutions (35 Stat. L. 1160, 1161) approved January 26, 1909, Congress authorized Mississippi and Louisiana and Mississippi and Arkansas to fix the river boundary lines between them and to cede the one to the other any tracts of land that had been separated from the main body of either State by changes in the channel of Mississippi River.²³

The change in the location of the river channel caused by the avulsion of 1912-13 at Albemarle Bend (about 15 miles north of Vicksburg) was referred to the U.S. Supreme Court, which ruled that the boundary between the two States would remain as it was before the avulsion occurred (283 U.S. 791). The river is now (1975) considerably west of its former position.

The U.S. Supreme Court, in a decision dated February 26, 1974, ruled that an area known as Luna Bar was formed by accretion resulting from a gradual westward movement of the Mississippi River, and was therefore a part of the State of Mississippi (415 U.S. 302).

In the Mississippi State Code the river boundary is described as "the Mississippi River (meaning thereby the center of said river or thread of stream)."

LOUISIANA

The original territory of Louisiana was acquired from France. (See p. 23 and fig. 3.) In 1804 a portion of

²³ Similar authority was granted to Missouri and Kansas and to Oregon and Washington in 1910 (36 Stat. L. 861; see also 211 U.S. 127 and 214 U.S. 217).

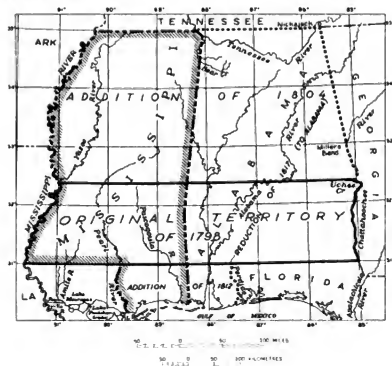


FIGURE 24.—Historical diagram of Mississippi.

this territory comprising part of the present State of Louisiana and the area south of lat 31° N. eastward to the Perdido, claimed by the United States as a part of the Louisiana Purchase, was organized into a Territory under the name of Orleans, and the rest of the Louisiana Purchase was named the District of Louisiana (2 Stat. 283). This name was changed to the Territory of Louisiana by act of March 3, 1805 (2 Stat. 331). By act of Congress of April 8, 1812 (2 Stat. 702), effective April 30, the Territory of Orleans, except the area north and east of Lake Pontchartrain, which was added by a later act, was admitted as a State under the name of Louisiana, and by the act of June 4, 1812, the name of the Territory of Louisiana was changed to Missouri Territory. (See fig. 27.) In the same year the limits of the State were enlarged on the southeast to their present extent (2 Stat. 708). The United States claim to the area between the Sabine and the Mississippi was not recognized by Spain until 1819.

The act approved March 26, 1804, (2 Stat. 283) defines the Territory of Orleans as

all that portion of country, ceded by France to the United States under the name of Louisiana, which lies south of the Mississippi territory, and of an east and west line to commence on the Mississippi river, at the thirty-third degree of north latitude, and to extend west to the western boundary of the said cession, shall constitute a Territory of the United States, under the name of the territory of Orleans.

The following clause from the act admitting Louisiana as a State defines its original boundaries:

* * * beginning at the mouth of the river Sabine; thence by a line to be drawn along the middle of said river, including all islands, to the thirty-second degree of latitude; thence due north, to the northernmost part of the thirty-third degree of north latitude; thence along the said parallel of latitude to the river Mississippi; thence down the said river to the river Iberville, and from thence along the middle of the said river and lakes Maurepas and Pontchartrain to the Gulf of Mexico; thence, bounded by the said gulf, to the place of beginning, including all islands within three leagues of the coast.

A case was brought in the Supreme Court by Texas against Louisiana to establish the location of the boundary in the Sabine River. The Court adopted the report of the Special Master, who recommended that the boundary is the geographic middle of the river and that Louisiana held all islands in the eastern half of the river and those that have existed in the western half since 1812 (410 U.S. 702).

The Court then held that the United States "should be requested to present any claims it may have to any of the islands in the western half of the Sabine * * *". Subsequently Louisiana moved to enlarge the reference of the Special Master to include the establishment of Louisiana's lateral boundary with Texas in the Gulf of Mexico. The United States recommended enlargement of the Special Master's reference to include the extension of that boundary to the seaward

limit of Texas' 9-mile grant under the Submerged Lands Act. The case is to be argued in the October term of the Supreme Court in 1975. Information on the past actions in the case and the position of the United States is set forth in the pretrial brief presented by the Department of Justice in May 1974.

The Iberville River is now known as Bayou Manchac. (See p. 23.)

An act approved April 14, 1812 (2 Stat. 708), made the following addition to Louisiana:

Beginning at the junction of the Iberville with the river Mississippi, thence along the middle of the Iberville, the river Amite, and of the lakes Maurepas and Pontchartrain, to the eastern mouth of the Pearl River, thence up the eastern branch of Pearl River to the thirty-first degree of north latitude; thence along the said degree of latitude to the river Mississippi; thence down the said river to the place of beginning, shall become and form a part of the State of Louisiana.

This change in the boundary, whereby an area of more than 5,000 square miles was added to the State, required acceptance by the legislature before it became effective. (See fig. 25.)

The question has often been asked why the State boundary as fixed by the act of April 8, 1812, was not made to include the area added a few days later. When the enabling act of February 20, 1811, was under consideration, it was proposed to include in the new State all or part of West Florida as described in the treaty of 1763 between Spain and Great Britain, but because of numerous objections this area was purposely omitted. The matter was brought up in the constitutional convention of January 1812, when it was again proposed to include the West Florida area east to the Perdido River, but the proposition was voted down, presumably because the enlarged area would include too many Anglo-American inhabitants, the objectors being largely among the Creoles of Louisiana (Cox, 1918, p. 548, 599, 601, 604).

A few days later, however, the convention sent a memorial to Congress asking that the West Florida area, west of the Pearl River, be at once made a part of the proposed State. This request was refused, as it was deemed best to provide for the change in a separate bill. The principal reasons for this action were that it gave the people of the new State an opportunity for accepting or refusing the addition as they saw fit, and although the United States was in actual possession of the area, the title was in dispute and according

to the presidential proclamation of October 27, 1810, was subject to "amicable negotiation."²⁴

The water boundary between Mississippi and Louisiana south of the Pearl River is thus described (202 U.S. 58; see also 202 U.S. 1):

"... the deep water channel sailing line emerging from the most eastern mouth of Pearl River into Lake Borgne and extending through the northeast corner of Lake Borgne, north of Half Moon or Grand Island, thence east and south through Mississippi Sound, through South Pass between Cat Island and Isle a Pitre, to the Gulf of Mexico."...

The north boundary of the Territory of Orleans (now the State of Louisiana) was surveyed in 1806, presumably along the 33d parallel, from the west bank of the Mississippi River to the east bank of the Red River, a reported distance of 147 miles 49 chains. Most of the marks were blazed trees. This location of the line was accepted in 1841 as the State boundary. From mile 101 to the Red River this line was resurveyed and re-marked in 1841. Other parts of the line have been resurveyed as part of the regular work of the General Land Office. West of the Red River the line was surveyed in 1839. The western 6 miles was resurveyed in 1895, and a stone post 48 inches long and 10 inches square was placed on the Texas line to mark the northwest corner of the State.

²⁴ For references to Congressional debates on this subject, see "Annals of Congress" (Pub. in 1853), 11th Cong., 3d sess., p. 486; 12th Cong., 1st sess., v. 1, p. 188-194, 1159 v. 2, p. 1185-1215.

The Geological Survey has located points on this line as follows: Near east end of line, lat 33°00'16.5" N., long 91°13'21.2" W.; near Arkana, lat 33°01'11.0" N., long 93°40'24.7" W.; 1½ miles east of the northwest corner of the State, lat 33°01'09.7" N., long 94°01'18.6" W. For reference to the survey of the west boundary, see Texas, page

ALABAMA

On March 3, 1817, by an act of Congress, Alabama Territory was formed from the eastern part of Mississippi Territory. Alabama was admitted into the Union by resolution dated December 14, 1819. The enabling act of March 2, 1819 (3 Stat. L. 490), describes the boundaries as follows:

"... beginning at the point where the line of the thirty-first degree of north latitude intersects the Perdido river; thence east to the western boundary line of the state of Georgia; thence along said line to the southern boundary line of the state of Tennessee; thence west along said boundary line to the Tennessee river; thence up the same to the mouth of Bear creek; thence by a direct line to the northwest corner of Washington county; thence due south to the Gulf of Mexico; thence eastwardly, including all the islands within six leagues of the shore, to the Perdido river; and thence up the same to the beginning.

Section 3 of the enabling act provided that

it should be the duty of the surveyor of the lands of the United States south of the state of Tennessee, and the surveyor of the public lands in the Alabama territory, to run and cut out the line of demarcation, between the state of Mississippi and the state to be formed of the Alabama territory; and if it should appear to said surveyors, that so much of said line designated in the preceding section, running due south, from the north-west corner of Washington county to the Gulf of Mexico, will encroach on the counties of Wayne, Green, or Jackson, in said state of Mississippi, then the same shall be so altered as to run in a direct line from the north-west corner of Washington county to a point on the Gulf of Mexico, ten miles east of the mouth of the river Pascagoula.

²⁵ The western crossing of the Tennessee River is intended

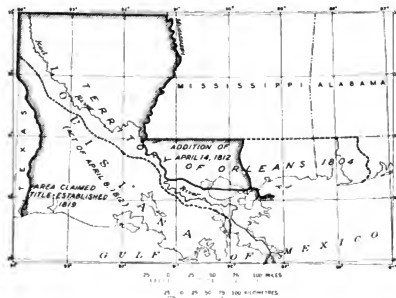


FIGURE 25.—Historical diagram of Louisiana.

That part of the Alabama-Mississippi boundary from the mouth of Bear Creek, on the Tennessee River, southerly to the northwest corner of what was then Washington County, Ala., was surveyed by James W. Exum, U.S. deputy surveyor, in 1820 under the direction of John Coffee and Thomas Freeman. The field notes and plats of this survey, which were approved by John Coffee on October 12, 1820, are filed in the Records of the General Land Office, now in the custody of the National Archives and Records Service. A trial line was run northerly from the stump of an oak tree 20 feet tall which marked the corner of the county. The true bearing of this part of the boundary was found to be N. 2°08' E. The final line was run on that course, and posts were established at each mile, the measured distance being 204 miles 30 chains.

The part of the boundary between the line described above and the Gulf of Mexico was also surveyed in 1820 under the direction of Thomas Freeman.¹⁶ From this survey it was found that

the experimental line encroached on the Counties of Wayne, Green and Jackson in the State of Mississippi & . . . falls on the Gulf of Mexico six miles, 22 chains & 54 links East of the Mouth of the river or Bay of Pascagoula . . . we have determined to alter said line to a point on the Gulf of Mexico three miles, 57 chains & 46 links East of the experimental line, . . . which will be ten miles east of the mouth of the river or Bay of Pascagoula, and there fix permanently the termination of the boundary line between the States of Mississippi & Alabama.

The final line was run and marked as above described for a distance of a little more than 102 miles, and a terminal mound was established about 3 miles from the Gulf, further progress being prevented by swamps. The entire line was cleared, all nearby trees were blazed, posts were set at each mile, and at important points mounds of earth 12 feet at the base and 5 feet high were erected.

The boundary between Alabama and Mississippi is described as follows (Whitefield, 1906, p. 244):

[Beginning at] a point on the west bank of the Tennessee river, six four-pole chains south of and above the mouth of Yellow creek; thence up the said river to the mouth of Bear creek; thence by a direct line to what was formerly the northwest corner of the county of Washington, (Ala.); thence in a direct line to a point ten miles east of the Pascagoula river, on the Gulf of Mexico;

The boundary between Alabama and Tennessee is by statute the 35th parallel of north latitude (see North Carolina, p. 97); from Nickajack (see Georgia, p. 103) the line runs (Keys and Wood, 1877, p. 189)

west along the southern boundary line of the state of Tennessee crossing the Tennessee river, and on to second intersection of said river by said line.

In October, 1807, Thomas Freeman made sextant observations for latitude a short distance east of the

Elk River, near long 87° W. He marked a point which he estimated was on the 35th parallel, the north boundary of the area then called the Mississippi Territory, and ran the line between the Elk River and the old Cherokee line, a distance of about 30 miles. In 1817 the line was extended westward to the Tennessee River a measured distance of a little more than 71½ miles. Between 1822 and 1839 this boundary line was run eastward as far as the northwest corner of Georgia. The notes of these surveys are in the Alabama field notebooks of the General Land Office.

For the history of the boundary between Alabama and Georgia, see Georgia, page 103; and for the history of the boundary between Alabama and Florida, see Florida, page 102.

The northeast corner of Alabama, as now marked, is more than a mile south of the 35th parallel. The north boundary crosses the 35th parallel near long 87°20' W. and at the northwest corner of the State it is about half a mile north of its proper position as defined by statute. The latitude and longitude of a number of points on the western part of the north boundary are given in U.S. Geological Survey Bulletins 216, 276, 440, and 551 (Gannett, 1903, 1905; R. B. Marshall, 1910, 1914).

TENNESSEE

Tennessee was originally a part of North Carolina. In 1784 the Legislature of North Carolina passed an act of cession to the United States of its western counties. Although the act was soon afterward repealed, the people of Greene, Sullivan, and Washington Counties (now eastern Tennessee), believing themselves to be without proper government and inadequately defended against the Indians, revolted in 1785 and proceeded to organize an independent State to be called Franklin. A constitution was adopted, and a governor and a legislature were elected. It was planned to invite the inhabitants of adjoining areas now forming parts of Virginia, West Virginia, Ohio, Kentucky, Tennessee, and Alabama to join the movement and thus create a large State; but the continued opposition of North Carolina finally prevailed, and in 1788 North Carolina again gained control. (Haywood, 1823, p. 142-175; Am. Hist. Rev., 1903, v. 8, p. 271-293.)

North Carolina in 1790 again passed an act ceding her western lands to the United States. The cession was accepted by act of Congress approved on April 2 of that year, and a government was provided for in "An act for

¹⁶ See unpublished report by John Coffee and Thomas Freeman, dated May 29, 1820, and field notes on file in the records of the General Land Office.

the government of the territory of the United States south of the Ohio River" (1 Stat. L. 123). The boundaries (fig. 21) described in the act of cession are substantially those of the State of Tennessee at the present day. (Carroll, 1903, p. 240-243; Staunton, 1860, p. 211-220; Shannon, 1917, v. 1, p. 33-62.)

Tennessee was admitted to the Union as a State by act approved June 1, 1796. The act of admission defined it as "the whole of the territory ceded to the United States by the State of North Carolina" (1 Stat. L. 491).

For the history of the eastern boundary, see North Carolina, page 98; for the southern boundary, see Georgia, pages 101, 102; Alabama, page 109; and Mississippi, page 105.

The middle of the Mississippi River became the western boundary of this area by the treaty of peace of 1783.

Virginia and North Carolina, prior to the creation of the States of Kentucky and Tennessee, appointed commissioners—Messrs. Walker and Henderson—to run and mark their common boundary on the parallel of lat 36°30' N. From a point on the top of the Cumberland Mountains, now the southeast corner of Kentucky, Walker ran and marked the line to a point on the Tennessee River. This line, called Walker's line, was regarded for many years as the dividing line between Kentucky and Tennessee. It has since been ascertained, however, that Walker's line was about 3 minutes north of lat 36°30' N.

The Indian title to the land west of the Tennessee River being extinguished by the treaty of 1819, the Legislature of Kentucky appointed Robert Alexander and Luke Munsell to ascertain the true point of lat 36°30' N. on the Mississippi and to run and mark a line east on that parallel, which was done as far east as the Tennessee (Carroll, 1903, p. 240-243).

In 1820 commissioners were appointed by Kentucky and Tennessee to settle the boundary. Their report, ratified by the States and approved by Congress May 12, 1820, is in part as follows (Haywood, 1823, p. 485; Carroll, 1903, p. 240; 3 Stat. L. 609. For reference to the 1826 survey of this line by Thomas J. Matthews, see Henry, 1920, p. 177-184).

The line of boundary and separation between the States of Kentucky and Tennessee shall be as follows, to wit: The line run by the Virginia commissioners, in the years 1779 and 1780, commonly called Walker's line, as the same is reputed, understood, and acted upon by the said States, their respective officers and citizens, from the south-

eastern corner of Kentucky to the Tennessee river; thence with and up said river to the point where the line of Alexander and Munsell, run by them in the last year under the authority of an act of the legislature of Kentucky entitled an act to run the boundary line between this state and the state of Tennessee, west of the Tennessee river, approved February the 8th, 1819, would cross said river; and thence with the said line of Alexander and Munsell to the termination thereof on the Mississippi river, below New Madrid.

In 1858-59 commissioners were appointed by Kentucky and Tennessee to rerun this line. The report of the commission on the part of Tennessee, giving courses, bearings, and milestones erected can be found in the State statutes (Thompson and Steger, 1873, p. 223-243). The report of the commission on the part of Kentucky, including latitudes and a map of the line, was printed at Frankfurt by the State printer, in 1860, as a pamphlet of 98 octavo pages. Between Cumberland Gap and the Tennessee River the line is from 5¼ to 12 miles north of lat 36°30' N. As a result of this and other errors in the location of its boundaries, Tennessee gained about 2,500 square miles of territory that it would not have had if the lines had been correctly located.

The line was run from the Mississippi eastward to the Tennessee, thence down that river to a point at approximate lat 36°40'45" N., and thence eastward; it followed the old Walker line wherever identifiable, and where no marks were known it was run to points where the Walker line was reputed to be. At the southwest corner of Virginia is an offset from the Walker line, which had been adopted for the Kentucky boundary, to the compromise line agreed on by Virginia and Tennessee in 1803. The line was continued to the northeast corner of the State and thence about 1½ miles southwest to the North Carolina line, a total distance of about 432 miles.

There are many angles and offsets in the line east of the Tennessee River that can scarcely be attributed to errors in surveying. It seems, however, that the commissioners who first ran the line between Virginia and North Carolina (the Byrd line) and the Tennessee north boundary (the Walker line) were allowed to change the lines at their discretion provided the commissioners for both States agreed; consequently they ran the line on an irregular course to accommodate influential inhabitants along the boundary who desired to remain in one State or the other. (For a comprehensive history of this line, see Garrett, 1884.)

By act of January 28, 1901, Tennessee ceded the north half of the main street in the old town of Bristol to Virginia. This cession was accepted by Virginia February 9, 1901, and approved by Congress March 3, 1901. (31 Stat. L. 1465. See 190 U.S. 75 for reference to this cession.)

For a history of the boundary between Virginia and Tennessee, see Virginia, page 95.

An excellent article by Park Marshall on the boundary lines of Tennessee has been published by the State geological survey (Marshall, 1918, p. 90-108).

Geographic positions on the Tennessee-Virginia boundary have been determined by the U.S. Coast and Geodetic Survey as follows:¹⁷

A stone post 24 inches long, set 20 inches in the ground, on Holston Mountain a short distance northwest of Sutherland, at lat 36°36'51.2" N. and long 81°49'36.3" W. This station is very near the State line if not on it. The observer who located it stated:

The sketch submitted with the report of the commissioners who ran out the State line in 1858 shows an offset of about 1¼ miles between Bristol and this station. The tree marks are found on the straight line east of the offset point but are said not to be continuous; and blocks have been cut from some trees showing the age of 1802 or 1803 and have been crasseed out. The only line marked through is that with this offset. Blocks with these erased marks can be had in Bristol, in the possession of Mr. Hufacre [1894].

I have found a stone post on this line in the valley of Beaver Dam Creek, about 1¼ miles above the village of Damascus and about 2 miles east of this station. I traced the line from this stone west to the highest point it crosses on Holston Mountain, where the station is established, and found several trees marked by both commissioners (1802, or 1803, and 1858) easily recognized at this date. The line of 1802 or 1803 is called the "diamond line," from the method of marking always thus: . . . while the marks of 1858 are always :

In Bristol, Tenn.-Va., lat 36°35'41.6" N., long 82°10'41.6" W., the State line passes 15 feet south of the Baptist Church steeple.

On a ridge about 5 miles west of Bristol, lat 36°35'42.1" N., long 82°15'54.5" W.

About 3 miles north of Kingsport, Tenn., lat 36°35'39.9" N., long 82°35'35.8" W.

On Clinch Mountain, about 4 miles southeast of Fairview, Va., lat 36°35'37.3" N., long 82°49'49.4" W.

On the crest of Powell Mountain, about 8 miles northeast of Sedalia, Tenn., lat 36°35'38.0" N., long 83°10'32.3" W.

About 3 miles south of Ewing, Va., lat 36°35'50.5" N., long 83°27'52.6" W.

The following positions are on the Tennessee-Kentucky boundary (1927 N.A.D.):

Nine miles north of Oneida, Tenn., lat 36°35'51.86" N., long 84°34'16.02" W.

Boundary monument 48, along Byrdstown-Albany Road, lat 36°37'23.35" N., long 85°07'06.45" W.

Boundary monument 27, 0.5 miles south of Keysburg, lat 36°38'37.62" N., long 87°01'00.20" W.

State-line monument 2 (known locally as Puckett Rock) is about 7 miles south of Hickman, along Dyersburg Road, at lat 36°30'22.66" N., long 89°15'26.52" W.

KENTUCKY¹⁸

Kentucky was included in the original limits of Virginia (fig. 21) and was a part of Augusta County, which was formed in 1738. In 1769 Botetourt County was created from a portion of Augusta County; in 1772, Fincastle from Botetourt; in 1776, Kentucky from Fincastle. The boundaries of these counties are described by Henning (1821, v. 9; 1822, v. 10).

In 1789 Virginia passed an act giving consent that the district of Kentucky be formed into a new State. Accordingly, by an act of Congress approved February 4, 1791, effective June 1, 1792 (1 Stat. 189), Kentucky was admitted into the Union with substantially its present boundaries.

The cession by Virginia to the United States of the territory northwest of the Ohio, in 1784, made the north bank of that river the dividing line, and consequently it became the north boundary of the State of Kentucky, the exact line being fixed by the low-water stage of the river (5 Wheaton 374). The western boundary, the middle of the Mississippi, was the line fixed by the treaty of peace in 1783.

The Supreme Court decided in 1820 (5 Wheaton 374), in a suit before it for the possession as a part of Kentucky of a tract of land on the north side of the Ohio, which at high water became an island, that

No land can be considered an island unless it is surrounded by water at all times. The same tract of land can not be sometimes in Kentucky and sometimes in Indiana, according to the rise and fall of the river. It must be always in the one State or the other.

For a history of the boundary between Kentucky and Virginia and West Virginia, see Virginia, page 94; for the boundary between Kentucky and Tennessee, see Tennessee, page 110.

A peculiar aspect of the extreme southwest corner of Kentucky is that owing to a double bend in the Mississippi River, an area of about 10 square miles belonging to Kentucky cannot be reached from the rest of the State without passing through a part of Missouri or Tennessee.

OHIO

Ohio was the first State formed from the original "Territory northwest of the River Ohio." The congressional enabling act, approved April 30, 1802 (2 Stat. L. 173), contained certain provisos with which the con-

¹⁷ See 190 U.S. 64 for report of commissioners who resurveyed this line in 1902-3.

¹⁸ The legal name for this State is "The Commonwealth of Kentucky."

stitution of the proposed State must comply. It seems evident, therefore, that the constitution as framed required the approval of Congress before it became effective.

The constitutional convention completed its labors November 29, 1802; the constitution was referred to Congress and first considered in the Senate in January 1803. Apparently it complied with the provisos of the enabling act, for under date of February 19, 1803, an act was approved "to provide for the due execution of the laws of the United States within the State of Ohio" (2 Stat. L. 201). In this act, reference was made to the action of the convention, thus virtually approving the constitution as submitted, although it provided for a change in the boundary described in the enabling act. Referring to the constitution as adopted, this act states, "whereby the said State became one of the United States of America." An act approved February 21, 1806 (2 Stat. L. 350), appropriated money for the payment of salaries of the governor, secretary, and judges of the "late Territory" of Ohio from November 29, 1802, to "the first Tuesday in March, 1803" (March 1).

It would therefore appear that March 1, 1803, was the date on which Congress assumed that Ohio statehood came into full effect. In further confirmation of this conclusion, it should be noted that the Territorial delegate in Congress retained his seat until March 1, 1803, and the first general assembly of the State convened on the same date. (Mag. Am. Hist., October 1887, p. 306-316; Tannehill, 1920, p. 9.)

In view of the conflicting evidence as to the date of Ohio's admission to the Union, it is not surprising that various dates are claimed as correct. However, the congressional act signed by the President February 19, 1803, referred to above, says in part:

Be it enacted by the Senate and the House of Representatives of the United States of America in Congress assembled, That all the laws of the United States which are not locally inapplicable, shall have the same force and effect within the said State of Ohio as elsewhere within the United States.

The formal wording of this part of the act would imply congressional approval to the entrance of Ohio into the Union, and it is probable that February 19, 1803, should be accepted as the date.

The limits of the State as given in the enabling act are as follows (2 Stat. L. 173):

* * * bounded on the east by the Pennsylvania line, on the south by the Ohio River, to the mouth of the Great Miami river, on the

west by the line drawn due north from the mouth of the Great Miami, aforesaid, and on the north by an east and west line, drawn through the southerly extreme of Lake Michigan, running east after intersecting the due north line aforesaid, from the mouth of the Great Miami until it shall intersect Lake Erie or the territorial line, and thence with the same through Lake Erie to the Pennsylvania line, aforesaid: *Provided*, that Congress shall be at liberty at any time hereafter, either to attach all the territory lying east of the line to be drawn due north from the mouth of the Miami, aforesaid, to the territorial line, and north of an east and west line drawn through the southerly extreme of Lake Michigan, running east as aforesaid to Lake Erie, to the aforesaid State, or dispose of it otherwise, in conformity to the fifth article of compact between the original States, and the people and States to be formed in the territory northwest of the river Ohio.

In the constitution of Ohio, article 7, section 6, the boundaries are described in the same words used in the enabling act but with the following proviso:

Provided always, and it is hereby fully understood and declared by this convention, that if the southerly bend or extreme of Lake Michigan should extend so far south, that a line drawn due east from it should not intersect Lake Erie, or if it should intersect said Lake Erie east of the mouth of the Miami River [now Maumee River] of the Lake, then, and in that case, with the assent of the Congress of the United States, the northern boundary of this State shall be established by, and extending to, a direct line running from the southern extremity of Lake Michigan to the most northerly cape of the Miami Bay, after intersecting the due north line from the mouth of the Great Miami River as aforesaid; thence northeast to the territorial line, and by the said territorial line to the Pennsylvania line.

The framers of the Ohio constitution had good reason for believing that the description of the northern boundary given in the enabling act was based on inaccurate maps²⁹ and that this description, if adhered to, would deprive the State of a large area that Congress intended it should have, and for this reason they inserted the proviso in the constitution. Ohio was admitted to the Union as a State without specific acceptance or rejection by Congress of this proviso.

In 1812 Congress authorized the survey of the line (2 Stat. L. 741) as described in the enabling act of 1802, but the work was not undertaken until several years later.

Lines were run in 1817 by William Harris, under the direction of the surveyor general of Ohio, presumably by authority of the act of 1812—first a random or trial line due east from the southern extremity of Lake Michigan to the western Ohio line and another from the most northerly cape of Maumee Bay west and south to the due east line. Manuscript copies of the notes and plats of these lines are filed in the General Land Office. From the data thus obtained, a true line was then run for the northern boundary of Ohio as described in the State constitution, on which 71 marks were established at mile intervals. This line is from 5 to 7 miles north of the due east line from the southern extremity of Lake Michigan. (See fig. 31.)

²⁹ See Lake Michigan as shown on the Mitchell map; also fig. 31, many other maps published prior to 1830 showed the lake in the same relative position.

When news of this survey reached the Governor of Michigan, it naturally called forth vigorous protests from him as well as from other residents of the Territory. After considerable fruitless discussion a committee was sent from Michigan to Washington to seek redress, with the result that an order was given to run the line as authorized by the act of 1812. This survey was executed by Surveyor Fulton in 1818. He ran the north boundary due east from the southern extremity of Lake Michigan.³⁰ Congress neither confirmed nor rejected it. Ohio, as was to be expected, refused to accept it.

In order to have data for settling the dispute, Congress in 1832 (4 Stat. L. 596) ordered the determination of latitude and longitude at important points on the two lines; the positions of eight stations were found, but apparently no use was made of them. As time passed the boundary disputes grew more bitter until a crisis was reached in February, 1835, when the Ohio Legislature passed a resolution declaring the northern line to be the true boundary of the State and ordering that the State's jurisdiction be extended to that line. Armed troops were assembled by both sides, and civil war seemed imminent. The President, Congress, and the courts were called on to settle the trouble, and a commission was sent from Washington in the hope of effecting a compromise. (Way, 1869; Faris, 1926.) Finally better judgment prevailed; Michigan was induced to suspend hostile actions, principally from the hope of statehood with increased territory on the north and a share in the allotment of public funds. Ohio on her part had every expectation of obtaining the coveted territory, and so this bloodless war came to an end.

Michigan Territory had for several years had a population large enough for admission to the Union as a State, but action was delayed because of the boundary dispute.

On June 15, 1836, an act was approved to establish the northern boundary of Ohio and admit Michigan as a State (5 Stat. L. 49), provided the new State, by vote of a convention called for the purpose, accepted the boundary as thus described:

"... the northern boundary line of the State of Ohio shall be established at and shall be a direct line drawn from the southern extremity of Lake Michigan, to the most northerly cape of the Maumee (Miam) Bay, after that line, so drawn, shall intersect the eastern boundary line of the State of Indiana, and from the said north cape of the said bay, northeast to the boundary line between the United States and the Province of Upper Canada, in Lake Erie: and thence, with the said last-mentioned line, to its intersection with the western line of the State of Pennsylvania.

The line as above established was the line which had been surveyed and marked by Harris in 1817, and it was confirmed by congressional act of June 23, 1836

(5 Stat. L. 56), which thereby gave Ohio full control over an area of 520 square miles, long in dispute.

The first Michigan convention voted against the acceptance of this boundary, but another one voted for its acceptance in December 1836. The line as surveyed and marked in 1817 thus became the northern boundary of Ohio.

Parts of the line as marked in 1817 were retraced and re-marked in 1837 and 1842 by the General Land Office.³¹

In 1915 the legislatures of the two States authorized the resurvey and monumenting of the line. All existing marks of the previous surveys were to be recovered, and where none existed straight lines were to be run between known points. The survey was commenced at the northwest corner of Ohio, which, being in a public road, was marked by a large granite block set 12 inches below the road surface and by a granite "witness" post 12 by 12 inches in section and 5½ feet long set on the line 20 feet east of the corner. The position of this corner, which is on the Indiana line, is lat 41°41'45.88" N., long 84°48'21.66" W. The line is somewhat irregular; sections of it range from N. 85°27' E. to N. 89°41' E. and the mean is about N. 87°55' E., true bearing. Boundary post 47 is at lat 41°43'15.88" N., long 83°51'33.36" W. These points have been tied into the triangulation of the U. S. Coast and Geodetic Survey and are on 1927 N.A.D.

The last post set on the line (no. 71) is about 900 feet from the shore of Maumee Bay, and its position is lat 41°43'56.63" N., long 83°27'16.97" W. The position of each of the other posts and the distance and bearing from each to the next are set forth in the Ohio State report of 1916, which gives a historical sketch of the line. (Sherman, 1916-33, v. 1; Soule, 1897, p. 346-378; U. S. Congress, 1835.)

The boundary between Ohio and Michigan in Lake Erie was further defined by the U. S. Supreme Court in 1973 (410 US 420). To pass the line through the most northerly cape of Maumee Bay as it was located in 1836, as required by the act admitting Michigan as a State (see above), the Court defined a line extending from post no. 71 on a true bearing N. 87°49'44" E. to the point of intersection with a line on a true bearing of S. 45° W. from the center of the circular seawall

³⁰ The field notes of both the Fulton and Harris surveys are on file in the U. S. National Archives.

³¹ The General Land Office was combined with the Grazing Service in 1946 to form the Bureau of Land Management, a bureau of the Department of the Interior.

The south boundary is the low-water line on the north bank of the Ohio.

For a description of the east boundary, see Pennsylvania, page 83.

INDIANA

on Turtle Island. From Turtle Island the line continues N. 45° E. to the international boundary.

The west boundary of Ohio is that fixed by the enabling act—a line due north from the mouth of the Miami River.²² It was surveyed and marked in 1799 from the south end northward to Fort Recovery as the first principal meridian of the General Land Office. (See fig. 26.) This line was extended to the present northwest corner of the State in 1817.

²² The present mouth of the Miami River is a short distance east of the mouth in 1799.

By the act approved May 7, 1800, to take effect on and after July 4 of that year, the "Territory northwest of the River Ohio" was divided into two parts, the eastern part to retain the old name, the western part to become the Territory of Indiana. (See fig. 26.) The description of the boundary line between these two Territories is given in the act (2 Stat. L. 58) as follows:

That from and after the fourth day of July next, all that part of the territory of the United States northwest of the Ohio River, which lies to the westward of a line beginning at the Ohio, opposite to the mouth of the Kentucky river, and running thence to Fort Recovery, and thence

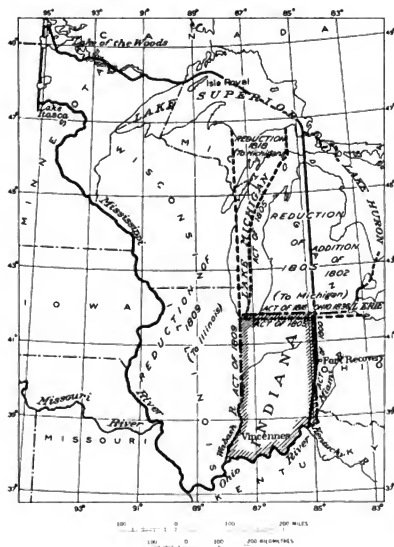


FIGURE 26.—Historical diagram of Indiana.

north until it shall intersect the territorial line between the United States and Canada, shall, for the purpose of temporary government, constitute a separate Territory, and be called Indiana Territory.

That whenever that part of the territory of the United States which lies to the eastward of a line beginning at the mouth of the Great Miami river, and running thence due north to the territorial line between the United States and Canada, shall be erected into an independent state, and admitted into the Union on an equal footing with the original states, thenceforth said line shall become and remain permanently the boundary line between such State and the Indiana Territory, anything in this act contained to the contrary notwithstanding.

The line from the Ohio River running northeastward to Fort Recovery was the boundary of an Indian cession established by the "Greenville treaty" of 1795 (Royce, 1899, p. 654).

In the Ohio enabling act (of 1802) provision was made for the addition to Indiana Territory of a triangular strip of land between Ohio and that Territory and of that part of the Territory northwest of the River Ohio north of the limits of the new State (Ohio) and east of Indiana (2 Stat. L. 174), as follows:

All that part of the territory of the United States northwest of the river Ohio heretofore included in the eastern division of said territory, and not included within the boundary herein prescribed for the said state, is hereby attached to and made a part of the Indiana territory.

The admission of Ohio as a State removed from Indiana Territory a narrow strip about 1¼ miles wide north of Fort Recovery. (See fig. 26.)

On June 30, 1805 (2 Stat. L. 309), by an act approved January 11, 1805, the northeastern part of Indiana Territory was cut off and organized as Michigan Territory. For the divisional line between the two Territories, see Michigan, page 127.

On March 1, 1809, by an act approved February 3, 1809, Indiana Territory was again divided, and the western part was organized as Illinois Territory (2 Stat. L. 514). For a description of the line separating these two Territories, see Illinois, page 116.

On December 11, 1816, Indiana was admitted as a State with the limits as given in the following extract from the enabling act (3 Stat. L. 289), approved April 19, 1816, which have not since been changed:

the said State shall consist of all the territory included within the following boundaries, to wit: Bounded on the east, by the meridian line which forms the western boundary of the State of Ohio; on the South, by the river Ohio, from the mouth of the Great Miami River, to the mouth of the River Wabash; on the west by a line drawn along the middle of the Wabash, from its mouth to a point where a due north line drawn from the town of Vincennes, would last touch the northwestern shore of the said river; and from thence by a due north line, until the same shall intersect an east and west line drawn through a point ten miles north of the southern extreme of Lake Michigan; on the north by the said east and west line until the same shall intersect the first-mentioned meridian line which forms the western boundary of the state of Ohio.

A provision in this act required that the boundaries as therein described be ratified by a constitutional convention to be called; otherwise they would be fixed as described in article 5 of the ordinance of 1787. By ratifying them, June 29, 1816, Indiana missed an opportunity for including in its limits a considerably larger territory than it now has. There was a similar proviso in the enabling act of 1818 for Illinois.

The north boundary of Indiana is parallel to and 10 miles north of the line which runs due east from the southern extremity of Lake Michigan (3 Stat. L. 289). A survey of this line was made in 1827 in accordance with the congressional act of March 2 of that year.¹¹ The original plat of the survey was filed in the surveyor general's office in Chillicothe, Ohio, and a copy in the General Land Office in Washington. The approximate latitude as determined in 1827 is 41°47'43" N., but measurements by the Geological Survey near the east end (Marshall, 1916, p. 305) give the latitude as 41°45'33" N. The mark nearest Lake Michigan is in lat 41°45'36.07" N., long 86°46'03.36" W. (1927 N.A.D.). Parts of this line were retraced in 1828, 1834, 1839, and 1842 by the General Land Office.

For a description of the east boundary, see Ohio, page 114. For a description of the west boundary, see Illinois page 116.

The south boundary is the low-water line on the north side of the Ohio River. This interpretation was given by the Supreme Court (18 U.S. 374) to the phrase "northwest of the river Ohio" in the cession to the United States by Virginia of its territory on the northerly side of the river. This was reaffirmed in an opinion in *Indiana v. Kentucky*, (136 U.S. 479) in 1890. The low-water line of 1792 was fixed as the true boundary, this being the date of Kentucky's admission to the Union.

In 1942 and 1943, the two States passed acts with identical descriptions of surveys of the 1942 low-water line. Congress approved these acts on June 29, 1943 (57 Stat. 248).

A report from the Indiana State Highway Commission in 1969 gives the results of an exhaustive study of the location of the low-water line in 1792. Old surveys, records, and maps were consulted, and the report concludes that the boundary as of that date could be recovered.

¹¹ 4 Stat. L. 227. For map and description, see U.S. Cong., (1828).

ILLINOIS

Illinois Territory, originally part of the Territory northwest of the Ohio River and subsequently a part of Indiana Territory, was organized by act of February 3, 1809 (2 Stat. L. 514), effective March 1, 1809. The following clause from the act separating it from Indiana Territory defines its boundary (see fig. 26):

"... from and after the first day of March next, all that part of the Indiana territory which lies west of the Wabash river, and a direct line drawn from the said Wabash river and Post Vincennes, due north to the territorial line between the United States and Canada, shall, for the purpose of temporary government, constitute a separate territory, and be called Illinois.

Illinois was admitted as a State with its present boundaries by resolution approved December 3, 1818 (3 Stat. 536). The enabling act defines these boundaries as follows (3 Stat. 429):

"... the said State shall consist of all the territory included within the following boundaries, to wit: Beginning at the mouth of the Wabash River; thence up the same and with the line of Indiana, to the northwest corner of said state; thence, east with the line of the same state, to the middle of Lake Michigan; thence north along the middle of said lake to the north latitude forty-two degrees thirty minutes; thence west to the middle of the Mississippi river; and thence down along the middle of that river to its confluence with the Ohio River; and thence up the latter river along its northwestern shore to the beginning: "...

The eastern boundary of Illinois was ordered surveyed in 1810 in connection with the work of the General Land Office. In 1821 the Legislatures of Indiana and Illinois ordered a survey of their common boundary. A commissioner representing each State was appointed, and the line was run and marked with wooden posts the same year from a point "opposite the Vincennes Hotel on the N.W. Bank of Wabash river" northward to Lake Michigan. There is a signed copy of the field notes in the Indiana State Library at Indianapolis.

The Geological Survey determined the position of a large stone post on the north bank of the Wabash where the State boundary line leaves the river as lat $39^{\circ}20'57.6''$ N., long $87^{\circ}31'52.9''$ W. At lat $41^{\circ}17'53''$ N., the longitude of the line is $87^{\circ}31'36.5''$ W.

The northern boundary was surveyed and marked in 1831-32 by Commissioners Lucius Lyon, representing the United States, and John Messinger, representing Illinois. The field notes of this survey are in the National Archives. The position on the east side of the Mississippi of a point in lat $42^{\circ}30'$ N., having been found by observation, a stone about 7 feet long and of

an estimated weight of 5 tons was set in the ground on the high-water line. The stone was marked "Illinois" on its south side and "Michigan latitude $42^{\circ}30'$ N." on its north side. (The Mississippi River Commission later located either this stone or one on the State line near it and determined its latitude as $42^{\circ}30'29.3''$ N.) From this point the line was run east to the fourth principal meridian of the General Land Office, where a large mound of earth was erected, and was continued east to the Rock River. Observations then taken showed that the line was $54''$ too far north. An offset was taken the proper distance to the south, and a post was set on the east bank of the river, 81 miles 31 chains 9 links from the Mississippi, from which the line was extended (with frequent astronomic observations) to Lake Michigan, where an oak post 12 inches square and 9 feet long was set 5 feet in the ground at a point about 1 chain from the lakeshore. Recent observations show that this end of the marked line is about half a mile south of the parallel of $42^{\circ}30'$. The total length of the boundary as measured is 144 miles 48 chains 80 links. A post was also set on the east bank of the Fox River 125 miles 9 chains 10 links from the initial point. There is a signed copy of the report and notes in the files of the General Land Office.³⁴ The line west of the Rock River was later rerun and placed in a corrected position.

On April 18 and 19, 1881, the Mississippi River cut across a narrow strip of land near the town of Kaskaskia, Ill., and formed a new channel 4 miles east of its former position, thereby leaving an area of about 27 square miles on the west side of the river that belongs to Illinois (Burnham, 1914).³⁵

A decision of the U.S. Supreme Court on the boundary in this area as a result of an action, *Illinois v. Missouri*, was decreed in 1970. The Court's decision gives courses and distances along the boundary from the centerline of the present main channel of the Mississippi River at the southeast corner of Kaskaskia Island to the centerline north of Beaver Island. Beaver and Kaskaskia Islands are confirmed to Illinois, and two bodies of land identified as "Cottonwoods" and "Both Island" are confirmed to Missouri (399 U.S. 146).

The parts of the northern and eastern boundaries of Illinois in Lake Michigan are as follows: The north line of the State runs due east from the last point marked on land (lat $42^{\circ}29'37''$ N., nearly) to the middle of the lake, a distance of about 40 miles. The east line then follows the middle of the lake southward for about 52 miles, to the Indiana line (which there runs east and west through a point 10 miles north of the southernmost part of the lake). The Illinois line then runs due

³⁴ Boundaries, no. 22. See Gannett (1907) and R. B. Marshall (1914) 1916), for latitude and longitude of points on this line.

³⁵ For a map of the area, see the U.S. Geol. Survey map of the Kaskaskia quadrangle, Ill.-Mo.

west for about 17 miles to the northwest corner of Indiana, which is about $1\frac{1}{2}$ miles from land, thence south about $3\frac{1}{2}$ miles along the Indiana line to the lake shore.

Definition of the common boundaries of Michigan, Illinois, and Indiana in Lake Michigan by geodetic positions was advocated by these States in 1967. The matter was discussed but no definite proposals were formulated. The procedure would be to reference the computed points of intersection to monumented points on shore (see Wisconsin, p. 130).

MISSOURI

The name of the Territory of Louisiana was changed in 1812 (2 Stat. L. 743) to Territory of Missouri. At that time the Territory included all the original Louisiana Purchase, except the State of Louisiana. (See fig. 27.)

Missouri was declared a State on August 10, 1821, by presidential proclamation under authority of the joint resolution of Congress of March 2, 1821 (3 Stat. L. 645, 797), with boundaries as defined in the enabling act of March 6, 1820 (3 Stat. L. 545), as follows:

Beginning in the middle of the Mississippi river, on the parallel of thirty-six degrees of north latitude; thence west along that parallel of

latitude, to the St. Francois river; thence up, and following the course of that river, in the middle of the main channel thereof, to the parallel of latitude of thirty-six degrees and thirty minutes;^a thence west along the same, to a point where the said parallel is intersected by a meridian line passing through the middle of the mouth of the Kansas river, where the same empties into the Missouri river, thence from the point aforesaid north, along the said meridian line, to the intersection of the parallel of latitude which passes through the rapids of the river Des Moines, making the said line to correspond with the Indian boundary line; thence east from the point of intersection last aforesaid, along the same parallel of latitude, to the middle of the main fork of the said river Des Moines; thence down and along the middle of the main channel of the said river Des Moines, to the mouth of the same, where it empties into the Mississippi river; thence due east to the middle of the main channel of the Mississippi river; thence down, and following the course of the Mississippi river, in the middle of the main channel thereof, to the place of beginning.

The peculiar jog or "panhandle" at the southeast

^a This line (36°30') has since been known as the Missouri Compromise line.



FIGURE 27.—Historical diagram of Missouri.

corner of the State, between the Mississippi and St. Francis Rivers, is said to be the result of efforts of a prominent property owner who lived south of the parallel of $36^{\circ}30'$ to have his plantation included in the new State (Violette, 1918, p. 111).

In 1836 the boundaries were extended on the northwest to the Missouri River, as described in the following act of the legislature amendatory to the constitution of 1820 (Thorpe, 1909, v. 4, p. 2170):

That the boundary of the State be so altered and extended as to include all that tract of land lying on the north side of the Missouri River and west of the present boundary of this State, so that the same shall be bounded on the south by the middle of the main channel of the Missouri River and on the north by the present northern boundary line of the State, as established by the constitution, when the same is continued in a right line to the west, or to include so much of said tract of land as Congress may assent.

This act was approved by Congress on June 7, 1836, and was declared in effect by presidential proclamation of March 28, 1837. The following is an extract from the act (5 Stat. L. 34).

That when the Indian title to all the lands lying between the State of Missouri and the Missouri river shall be extinguished, the jurisdiction over said lands shall be hereby ceded to the State of Missouri, and the western boundary of said State shall be then extended to the Missouri river.

The north boundary of Missouri was surveyed and marked in part in 1816 and the remainder in 1850 under the General Land Office.²⁷

The Territory remaining after the formation of the State bore the name of Missouri for many years. In 1834 the part north of the State of Missouri and east of the Missouri and White Earth Rivers was annexed to the Territory of Michigan. (For further history of this portion, see Michigan, p. 127; Iowa, p. 131; Minnesota, p. 133; and Dakota, p. 134.) In 1854 Kansas and Nebraska Territories were formed, absorbing the remainder. (See Kansas, p. 138, and Nebraska, p. 136.)

The following are the boundaries of Missouri as at present established by statute: The east boundary is the middle of the main channel of the Mississippi (138 U.S. 226) from the mouth of the Des Moines to its point of intersection with the 36th parallel of latitude; the south boundary begins at the latter point and runs west on the 36th parallel to the St. Francis River, thence up the midchannel of that river to the parallel of $36^{\circ}30'$,

thence west on that parallel to its intersection by a meridian passing through the middle of the mouth of the Kansas River; the west boundary is the last-mentioned meridian as far north as the mouth of the Kansas River, thence it follows northward the mid-channel of the Missouri River to the parallel of latitude passing through the rapids of the Des Moines River, which is approximately the parallel of $40^{\circ}35'$; the north boundary is the last-mentioned parallel as far east as its point of intersection with the Des Moines River, whence it follows the midchannel of the Des Moines River southward to its mouth.

In 1939 the States of Missouri and Iowa agreed to change their common boundary in the Des Moines River to the midchannel as it then existed. This was approved by Congress on August 10, 1939 (53 Stat. 1345).

A similar agreement with Kansas along the Missouri River from the 40th parallel south to the mouth of the Kansas River was approved by Congress on August 3, 1950 (64 Stat. 397). Exchange of State sovereignty over affected lands was made effective beginning at midnight following the congressional action.

For the survey of the south boundary, see Arkansas, page 120; and for the north boundary, see Iowa, pages 131, 133.

The west boundary of Missouri south of the mouth of the Kansas River was surveyed in 1823, and a large stone post was set to mark the southwest corner of the State, at a point which sextant observations showed to be in lat $36^{\circ}30' N$. This position as determined by the Geological Survey in 1906 is lat $36^{\circ}29'58.0'' N$, long $94^{\circ}37'02.9'' W$. (Marshall, 1910, p. 488). The 1823 survey of the south boundary of the State was begun at this stone. In 1845 a mound of earth, which had a 10-foot base and was 5 feet high, was placed at a point 4.83 chains farther south.

The west boundary of the State was resurveyed and remarked in 1844-45.²⁸

A dispute concerning the river boundary between Missouri and Nebraska was settled in 1904 by the Supreme Court (196 U.S. 23; 197 U.S. 577), which reaffirmed the old rule that a sudden change in the course of a river does not affect a boundary line.

ARKANSAS

Arkansas²⁹ Territory was formed by act of March 2, 1819, effective July 4, 1819, from a part of Missouri

²⁷For geographic positions of three State-line points near Kansas City, see Baldwin (1915, p. 31).

²⁸This is the original spelling. A concurrent resolution passed by the Legislature of Arkansas in April, 1881 (Laws of 1881, p. 216-217), decided that in the opinion of that body the State name "should be pronounced in three syllables with the final 'a' silent, the 'a' in each syllable with the Italian round and the accent on the first and last syllables." The discussions which led to the passage of this act are given in Rose (1908, v. 2, p. 462-477).

²⁹Nearly all the boundaries of the States west of the Mississippi were surveyed under the direction of the General Land Office, most of them by contract surveyors. The field notes and plats of these surveys have been cataloged, and most of them are now on file in the National Archives.

Territory. (See fig. 28.) The following clause from the act (3 Stat. L. 474) establishing it defines its limits in part:

"... all that part of the Territory of Missouri which lies south of a line, beginning on the Mississippi River, at thirty-six degrees, north latitude, running thence west to the river St. Francis; thence up the same to thirty-six degrees thirty minutes north latitude; and thence west to the western territorial boundary line; shall, for the purposes of a territorial government, constitute a separate territory and be called the Arkansas Territory.

In 1824 an act was passed by Congress fixing the western boundary of the Territory. This was as follows (4 Stat. L. 40):

"... the western boundary line of the territory of Arkansas shall begin at a point forty miles west of the southwest corner of the State of Missouri and run south to the right bank of the Red River, and thence down the river and with the Mexican boundary to the line of the State of Louisiana.

Four years later, in 1828, an act defined the southern boundary as

commencing on the right bank of the Mississippi River at latitude thirty-three degrees north, and running due west on that parallel of latitude to where a line running due north from latitude thirty-two degrees north, on the Sabine River, will intersect the same (4 Stat. L. 276).

The treaty with the Cherokee Indians (7 Stat. L. 311) signed May 6, 1828, contained the following article:

The western boundary of Arkansas shall be, and the same is, hereby defined viz: A line shall be run, commencing on Red river, at the point where the Eastern Choctaw line strikes said river, and run due north with said line to the river Arkansas; thence in a direct line of the South West corner of Missouri.

The eastern Choctaw line referred to was fixed by the treaty with the Choctaw Nation of January 20, 1825, as beginning on the Arkansas River "one hundred paces east of Fort Smith, and running thence due south to the Red River." (Kappler, 1903, v. 2.)

Arkansas was admitted as a State on June 15, 1836. The enabling act (5 Stat. L. 50) approved on that date describes the boundaries as follows:

beginning in the middle of the main channel of the Mississippi river, on the parallel of thirty-six degrees north latitude, running from thence west, with the said parallel of latitude, to the Saint Francis river; thence up the middle of the main channel of said river to the parallel of thirty-six degrees thirty minutes north; from thence west to the southwest corner of the State of Missouri; and from thence to be bounded on the west, to the north bank of Red River, by the lines described in the first article of the treaty between the United States and the Cherokee nation of Indians, west of the Mississippi, made and concluded at the city of Washington, on the 26th day of May," in the year of our Lord one thousand eight hundred and twenty-eight; and to be bounded on the south side of Red river by the Mexican boundary line, to the northwest corner of the State of Louisiana; thence east with the Louisiana State line, to the middle of the main channel of the Mississippi River; thence up the middle of the main channel of the said river, to the thirty-sixth degree of north latitude, the point of beginning.

* This is an error, the date was May 6.

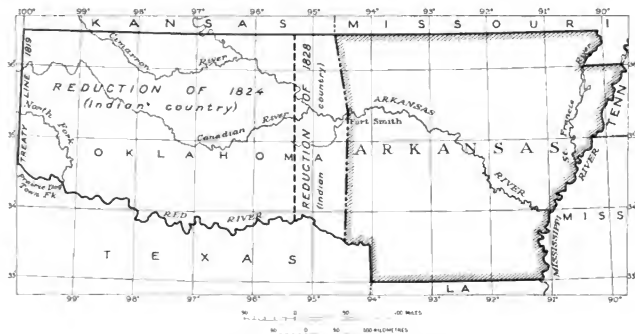


FIGURE 28.—Historical diagram of Arkansas.

In the State constitutions for 1836, 1854, 1868, and 1874 the boundaries were described but without material change from the description given in the enabling act. The constitution of 1868 refers to an island in the Mississippi named Belle Point Island as belonging to Arkansas, and the constitution of 1874 includes this clause: "and all other land originally surveyed and included as a part of the Territory or State of Arkansas."

An act of Congress approved February 10, 1905, changed the western boundary of Arkansas near Fort Smith so as to include in that State a portion of the Indian Territory (about one-fifth of a square mile), the boundaries of which were described (33 Stat. L. 714) as follows (see fig. 36):

Beginning at a point on the south bank of the Arkansas River one hundred paces east of old Fort Smith, where the western boundary line of the State of Arkansas crosses the said river, and running southwesterly along the south bank of the Arkansas River to the mouth of the Poteau; thence at right angles with the Poteau River to the center of the current of said river; thence southerly up the middle of the current of the Poteau River (except where the Arkansas State line intersects the Poteau River) to a point in the middle of the current of the Poteau River opposite the mouth of Mill Creek, and where it is intersected by the middle of the current of Mill Creek; thence up the middle of Mill Creek to the Arkansas State line; thence northerly along the Arkansas State line to the point of beginning.

By order of the U.S. Supreme Court (252 U.S. 344) commissioners in 1920 surveyed and marked a portion of the Arkansas-Mississippi State line, commencing about 1 mile below Friars Point, Miss., on an abandoned bed of the Mississippi River left dry by the avulsion of 1848. The line inclosed an area of about 5 square miles on the east side of the Mississippi as it now flows; the area was awarded to Arkansas (256 U.S. 28).

On March 7, 1876, the Mississippi changed the location of its main channel at a place about 20 miles up the river from Memphis, since known as "the Centennial Cut-off." The Mississippi, before this cut-off occurred, flowed northeastward along the west side of Brandywine Island, Ark. At the time of the avulsion the whole volume of the river with a head of 7 or 8 feet cut through a narrow neck of land, overcame the current flowing northeastward, and swept it backward for about 4 miles, thus reversing the direction of flow and forming a new main channel. An area of about 5 square miles of Arkansas land was left on the east side of the river, and 25 square miles of land belonging

to Tennessee on the west side. In order to determine the proper location of the boundary between the two States at this place, Arkansas brought suit in the U.S. Supreme Court against Tennessee, which was argued in the October term, 1917. The report of this case (246 U.S. 158) gives a great many references to court decisions regarding water boundaries in general. Three commissioners were appointed in 1918 (247 U.S. 461) to survey the line. Their report, filed May 24, 1921, was confirmed by the U.S. Supreme Court November 16, 1925 (269 U.S. 152; 271 U.S. 629).

The north boundary of Arkansas was surveyed in 1823. This line was not accepted. Further surveys in 1843 and 1846 commenced at a point near the Mississippi whose latitude from sextant observations was determined at 36° N. The marks consisted of tree blazes, wooden posts, and mounds of earth and stone. The 1843-46 line, which differed materially from that previously marked, was accepted by the legislatures and ratified by congressional act of February 15, 1848 (9 Stat. L. 211). Copies of the field notes of both lines are in the General Land Office records.

The part of the west boundary south of the Arkansas River was surveyed and marked in 1825, and that from Old Fort Smith to the southwest corner of Missouri, in 1831. That part of the west boundary south of the Red River was surveyed by the joint commission named by Texas and the United States in 1841 (see Texas, p. 122).

A resurvey of the west boundary was commenced in 1857, but after the surveyors had run it 8 miles due south from the Arkansas River they were directed to return to Fort Smith and to retrace the line of the previous survey, which had been found to diverge to the west (U.S. Cong., 1868).

A resurvey and re-marking of the entire west boundary was authorized in 1875 (18 Stat. L. 476). This work, which was completed in 1877, showed that the lines from Old Fort Smith both southward and northward diverged to the west, thereby adding to the area of Arkansas more than 200 square miles, the boundary mark on the Red River being 4 miles 16 chains west of a due south line from Old Fort Smith (U.S. Cong., 1879). The Cherokee and Choctaw Indians were paid for the land of which they had been thus wrongfully deprived (Arkansas Hist. Assoc., 1908, p. 211-236).

For a description of the south boundary, see Louisiana, p. 108.

TEXAS

Texas declared its independence of Mexico in 1835. In 1836 the Congress of the Republic of Texas defined the boundaries as extending south and west to the Rio Grande and northward from the source of that

river to the 42d parallel, the eastern and northern limits coinciding with the western boundary of the United States as laid down in the treaty with Spain in 1819. This area comprised all of the former Mexican States of Coahuila and Texas. The boundary as fixed by the treaty of 1819 was reaffirmed by treaty with Mexico concluded January 12, 1828, Mexico having in the meantime gained its independence from Spain. These boundaries (9 Stat. 447) were formally recognized by the U.S. act of September 9, 1850. (See p. 49 and fig. 29; see also Spillman, 1902 and 1904.)

Article 3 of the Mexican treaty of 1828 provided for the appointment of commissioners to survey and mark the land part of the boundary from the mouth of the Sabine River to the Arkansas River, to determine the latitude and longitude of the source of the Arkansas, and to mark the line of the 42d parallel to the South

Sea, but no commission was appointed under that treaty, and the line was not marked north of the Red River.

A treaty between the United States and the Republic of Texas, proclaimed in 1838, acknowledged the "treaty of limits" signed by Mexico and the United States in 1828 as binding upon Texas, which was then a part of Mexico, and provided for the marking of the boundary (Malloy, 1910, v. 2, p. 1779). The eastern boundary of the Republic of Texas, which followed the west bank



FIGURE 29.—Historical diagram of Texas.

of the Sabine River, was surveyed in 1840 by a joint commission representing the United States and Texas from the Gulf of Mexico to Logans Ferry, the observed latitude of which was found to be $31^{\circ}58'24''$ N. and the longitude, $94^{\circ}00'02.4''$ W. The initial mark of this survey was a mound of earth 50 feet in diameter and about 7 feet high on the shore of the Gulf, the position of which was reported as lat $29^{\circ}41'27.5''$ N., long $93^{\circ}50'14.2''$ W. (T. M. Marshall, 1914, chap. 12.) See Louisiana, page 106.

In the following year another commission ran the line northward along the Sabine River to the 32d parallel as determined from astronomic observations, thence along a true-north line to the south bank of the Red River. Mounds were erected at 1-mile intervals on the meridian boundary, the measured length of which was found to be a little less than $106\frac{1}{2}$ miles. The original plats of this survey are on file in the U. S. State Department, and the General Land Office has copies. The field notes were probably filed in the War Department.⁴¹ The approximate longitude of the meridian line at lat $33^{\circ}06'30''$ N. is $94^{\circ}02'35.1''$ W.

In a joint resolution approved March 1, 1845, Congress gave its consent for the erection of Texas into a State, provided certain conditions and "guarantees" were accepted, one of which was as follows (5 Stat. L. 797):

New States, of convenient size, not exceeding four in number, in addition to said State of Texas, and having sufficient population, may hereafter, by the consent of said State, be formed out of the territory thereof, which shall be entitled to admission under the provisions of the Federal constitution.

Texas does not appear, however, to have acquired by this proviso any advantages over other States, as it merely can give its "consent" to a division of its area, the right to make the recommendation or request for the division apparently resting with Congress.

On December 25, 1845, Texas was admitted as a State (9 Stat. L. 106).

In 1848 the eastern boundary was extended slightly as noted in the following extract (9 Stat. L. 245):

That this Congress consents that the legislature of the State of Texas may extend her eastern boundary so as to include within her limits one-half of Sabine Pass, one-half of Sabine Lake, also one-half of Sabine River, from its mouth as far north as the thirty-second degree of north latitude.

In 1850 the State sold to the U. S. Government for the

sum of \$10 million, payable in stock bearing 5 percent interest for 14 years, that part lying north of the parallel of $36^{\circ}30'$ from long 100° west of Greenwich to long 103° and west of long 103° as far south as the parallel of 32° (9 Stat. L. 446; see also 9 Stat. L. 1005).

The northern boundary of Texas from the 100th meridian westward is thus described in an act of Congress of June 5, 1858, authorizing the marking of the boundary lines between the territories of the United States and the State of Texas (11 Stat. L. 310):

Beginning at the point where the one hundredth degree of longitude west from Greenwich crosses Red River, and running thence north to the point where said one hundredth degree of longitude intersects the parallel of thirty-six degrees thirty minutes north latitude; and thence west with the said parallel of thirty-six degrees and thirty minutes north latitude to the point where it intersects the one hundred and third degree of longitude west from Greenwich; and thence south with the said one hundred and third degree of longitude to the thirty-second parallel of north latitude; and thence west with said thirty-second degree of north latitude to the Rio Grande.

For more than 50 years the title to an area of about 2,380 square miles was in dispute between the State of Texas and the United States. This area, formerly known as Greer County, is east of the 100th meridian and between the two main forks of the Red River, which branch in approximately $99^{\circ}12'$ west longitude. (See fig. 36.) Texas claimed that the North Fork of the Red River is the main stream and the one referred to in the description of the boundary in the Spanish treaty of 1819, and the United States claimed the South Fork as the proper location of the boundary. After years of litigation the Supreme Court on March 16, 1896, decided (162 U. S. 90) that

the territory east of the 100th meridian of longitude, west and south of the river now known as the North Fork of Red River, and north of a line following westward, as prescribed by the treaty of 1819 between the United States and Spain, the course, and along the south bank, both of Red River and of the river now known as the Prairie Dog Town Fork or South Fork of Red River until such line meets the 100th meridian of longitude—which territory is sometimes called Greer County—constitutes no part of the territory properly included within or rightfully belonging to Texas at the time of the admission of that State into the Union, and is not within the limits nor under the jurisdiction of the State, but is subject to the exclusive jurisdiction of the United States of America.

The Supreme Court records of this case, which cover more than 1,000 printed pages, are summarized in the decree of 36 pages. These documents contain much historical matter relating to the northern and eastern boundary of Texas, and also contain copies of a number of old maps. (Baker, 1902, p. 31-35.)

One clause of the decree places the boundary line on the south bank of the Red River, where it was believed old treaties and other official descriptions of the line intended it should be placed.⁴²

⁴¹ The journal of the commission and some excellent maps of the survey were published in U. S. Cong. (1842).

⁴² See footnote 40, p. 27, for reference to 100th meridian west of London.

⁴³ See reference to the "right bank of the Red River" in the act of 1824, defining the west boundary of Arkansas, p. 119.

Briefs in a suit by Oklahoma against Texas were submitted to the U.S. Supreme Court at its October term, 1920, and the decision, rendered April 11, 1921, reaffirmed the former decision making the south bank of the Red River the boundary, and in a decision rendered January 15, 1923 (260 U.S. 631), as to what constituted the south bank, it was stated that

the bank intended by the treaty provision is the water-washed and relatively permanent elevation or activity at the outer line of the river bed which separates the bed from the adjacent upland, * * * and that the boundary intended is on and along the bank at the average or mean level attained by the waters in the periods when they reach and wash the bank without overflowing it.

The bed of the stream was defined as including all of the area which is kept practically bare of vegetation by the wash of the waters of the river from year to year * * * and excluding

the lateral valleys which have the characteristics of relatively fast land and usually are covered by upland grasses and vegetation, although temporarily overflowed in exceptional instances when the river is at flood.

A survey of the boundary, in accordance with this decision, ordered by the court, was completed, and the final report of the commissioners was accepted and confirmed April 25, 1927 (274 U.S. 714).

An excellent historical review of this boundary dispute is given by Isaiah Bowman (1923, p. 161-189),⁴⁴ who states that the Red River case is "the most complicated boundary dispute on record anywhere."

Surveys for the Texas boundary on the 100th meridian west of Greenwich were made in whole or in part under the direction of the General Land Office in 1859, 1860, 1873, 1875, 1902, and 1903, but none of these was accepted as fixing the boundary.

In 1892 the State of Texas employed an astronomer to determine "with the utmost care the location of the 100th meridian [west of Greenwich] at its intersection with Red River." As a result of the work thus authorized, it was reported that the initial monument of 1859 was 45.11 seconds of longitude west of the true meridian. (Baker, 1902, p. 31-35.)

The position of this point was redetermined in 1902 from astronomic observations and reported as 3,699.7 feet (44.24") west of the 100th meridian. A stone post 10 by 10 by 45 inches in size was placed on the meridian at a point 1,563 feet north of the Red River (U.S. Cong., 1902, p. 8).

The line marked as the 100th meridian boundary was retraced in 1903 by the General Land Office from the Red River north to the assumed position of the parallel of 36°30' (U.S. Cong., 1905b, p. 4), and at a point computed to be on the true meridian a large concrete pier was erected marked on the southwest face "36°30' N.L.,

100° W.L., 1903." This pier is 243 feet north and 1,756 feet east from the east end of the Cimarron base line of the General Land Office. In 1881 a large stone was placed at that point and marked as being the northeast corner of Texas.

Neither Congress nor the State of Texas had approved any of the surveys for the 100th meridian; consequently none had any legal status (U.S. Cong., 1905, p. 10).

In October, 1926, the U.S. Supreme Court decreed⁴⁵ that neither the boundary survey of 1859-60 nor the location of the 100th meridian in 1902-3 could be accepted as establishing the boundary and ordered that a new survey be made.

In order to locate the line with all possible exactness, the commissioner appointed by the court decided to place it on the geodetic meridian (1927 N.A.D.; see p. 5) determined from first-order triangulation by the Coast and Geodetic Survey, and 20 stations were established by that survey on or near its assumed position.

The marking of the boundary line was commenced in 1928 at a point 340.28 feet east from the 1902 mark near the Red River and extended south to a point near the "cut bank" on the south side of the river, where a large reinforced-concrete monument was built; a reference mark on the meridian was placed at a point 351.2 feet farther south. From the cut-bank mark the line was run due north for a distance of 133.6 miles, checked in position at each of the 20 geodetic stations, and closed on an eastward extension of the 36°30' parallel boundary line as determined by Clark in 1860. There are now 160 concrete monuments on the line, each having a lettered metal tablet set in its upper surface. The line as thus established was approved by the U.S. Supreme Court March 17, 1930 (281 U.S. 109).

The mark set in 1929 for the northeast corner of Texas is in lat 36°29'59.56" N., long 100°00'00.00" west of Greenwich and is 286.5 feet southeast of the mark of 1903. The geodetic line as now marked is 4,040 feet east of the south end of the 1859-60 line and about 880 feet east of the north end of the line as marked in 1859-60 and retraced in 1873. The strip of land included be-

⁴⁴ A brief review of this boundary dispute and an extensive report (with maps) on the investigations made for fixing the position of the boundary are given in Texas Univ. Bull. 2327, 1923.

⁴⁵ 272 U.S. 21. This decree gives a detailed history of the various surveys for the establishment of the 100th meridian. See also a brief history of the surveys in General Land Office Service Bull., December 1906, p. 215.

tween these two lines has an area of about 44.6 square miles and was determined by the Supreme Court boundary decision to be in Texas and not in Oklahoma.⁴⁶

The northern line of the "panhandle" of Texas, which is the southern boundary of the "public-land strip," was fixed by statute at lat 36°30' N.

It was surveyed in 1860 by John H. Clark, boundary commissioner, United States and Texas. Sixteen monuments were erected on this boundary line. Monument 10 on this line is in lat 36°29'59.56" N., long 101°05'17.00" W. This location of the north boundary and the location of the 103d meridian boundary were confirmed by Congress and by Texas in 1891 (26 Stat. L. 948, 971; U.S. Cong., 1905, p. 13-18).

The location of the west boundary of Texas (fig. 30), which by statute is the 103d meridian, has been the cause of many disputes. The southern part of the line for about 69 miles and the northern part for about 172 miles were reported as surveyed and marked in 1859 by J. H. Clark, leaving an unmarked gap of about 69 miles. Most of the marks were merely mounds of earth; a few were stones or piles of stone, and some of these were identified many years thereafter. Later surveys indicate that the north end of the line is in long 103°02'28.04" W. and lat 36°31'01.45" N. (1927 N.A.D.). The south end is in long 103°03'55.02" W. and lat 31°59'58.52" N. (astronomic). There is therefore a discrepancy of about 1½ miles between the two parts of the line, both being west of their proper positions (Baker, 1902); but these lines as well as that following the 32d parallel, having been accepted by the United States and Texas, are the legal boundary lines.

A joint resolution of Congress February 16, 1911 (36 Stat. L. 1455), declared that "these boundary lines as run and marked by John H. Clark in 1859-60" shall remain the true boundary lines of Texas and New Mexico. "The lines were described as following the 103d meridian and 32d parallel as "determined by Clark," and commissioners were authorized to act for Texas and the United States to re-mark the north-south line so far as it could be identified; where no marks were found or where surveys had not been made, straight lines were to be run joining recovered points.

⁴⁶ For other data relating to this survey, see the commissioners' report to the Supreme Court dated July 15, 1929 (281 U.S. 109).

⁴⁷ See report by J. H. Clark (1862) commissioner.

In accordance with this act, surveys *were* run south from the known location of the north boundary mark, to the 34th parallel, to which Clark claimed to have run, and north from the identified mark established by Clark for the intersection of the 32d parallel and the 103d meridian, to the 33d parallel. Between the 32d and the 34th parallels a straight line was run which bears N. 1°00'42" E. Large concrete monuments (fig. 49) were established at a number of points, and other substantial marks were placed at each mile.

The 32d parallel boundary was also rerun in 1911; its length as measured was a little more than 209 miles. The latitude of this line near Clark monument 1, east of the Rio Grande, is 32°00'00.37" N. as determined from astronomic observations in 1903. At milepost 53 (resurvey of 1911) the geodetic position is lat 31°59'59.93" N., long 103°58'02.53" W. Milepost 61 is in lat 31°59'59.40" N., long 104°06'13.18" W. The notes and plats of these surveys are on file in the General Land Office.

The southern boundary of Texas is a part of the international boundary between the United States and Mexico and as defined by the treaty of 1848 and reaffirmed by the treaty of 1853 follows the middle of the deepest channel of the Rio Grande from the Gulf of Mexico to the southern boundary of New Mexico. A survey of this boundary was made in 1852-53. The report was published in 1857. It is generally referred to as the Emory report on the survey of the Mexican boundary (Emory, 1857b).

A convention, concluded November 12, 1884, provided for resurveys of parts of the boundary where important changes in the position of the river had occurred (Malloy, 1913, v. 1, p. 1159). This agreement stated that:

The dividing line shall . . . follow the center of the normal channel of the rivers named, notwithstanding any alterations . . . effected by natural causes through the slow and gradual erosion . . . and not by the abandonment of an existing bed and the opening of the new one.

Any other change wrought by the force of the current, . . . shall produce no change in the dividing line as fixed by the surveys of . . . 1852, but the line then fixed shall continue to follow the middle of the original channel bed, even though this should be wholly dry.

Modifications of the articles of the convention of 1884 were made by the convention of 1905 (Malloy, 1910, v. 1, p. 1199). The latter agreement provided for the solution of some of the problems raised by the earlier convention that were due to numerous changes in the position of the "normal channel" as follows:

Whereas . . . it has been observed that there is a typical class of changes effected in the bed of the Rio Grande, in which, owing to slow and gradual erosion, coupled with avulsion, said river abandons its old channel and there are separated from it small portions of land known as "bancos" bounded by the said old bed, and which, according to the terms of . . . the Convention of 1884, remain subject to the dominion and jurisdiction of the country from which they have been separated.

Whereas said "bancos" are left at a distance from the new river bed, and by reason of the successive deposits of alluvium, the old channel is becoming effaced, the land of said "bancos" becomes confused with the land of the "bancos" contiguous thereto, thus giving rise to difficulties and controversies, * * *

Whereas the labors of the International Boundary Commission, undertaken with the object of fixing the boundary line with reference to the "bancos," have demonstrated that the application to these "bancos" of the principle established in * * * the Convention of 1884 renders difficult the solution of the controversies mentioned, and, instead of

simplifying, complicates the said boundary line between the two countries: * * *

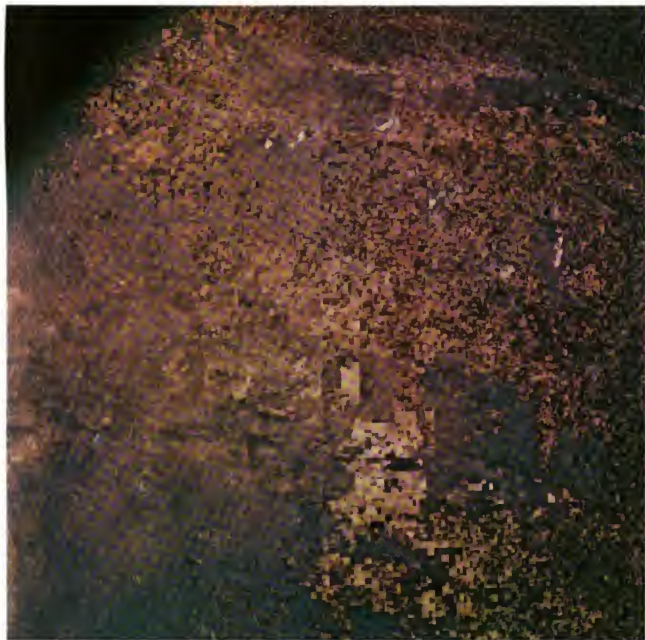


FIGURE 30.—Photograph taken from a satellite (Apollo 26A'-3807) at an altitude of 199 nautical miles shows the boundary between New Mexico and the panhandle of Texas. The land-use pattern in the two States changes at the State line. This print was produced from a 70-mm color infrared transparency. The principal point is at lat 33°42' N and long 103°01' W. Photograph courtesy of National Aeronautics and Space Administration.

Article 1 refers to maps made from surveys of 58 *banco*s along the lower Rio Grande which the convention eliminates, those on the right bank of the river passing to Mexico and those on the left bank to the United States.

Article 2 is in part:

The International Commission shall, in the future, be guided by the principle of elimination of the *banco*s established in the foregoing articles * * * There are hereby excepted from this provision the portions of land segregated by the change in the bed of the said rivers having an area of over two hundred and fifty hectares [618 acres, or nearly a square mile], or a population of over two hundred souls, and which shall not be considered as *banco*s for the purposes of this treaty and shall not be eliminated, the old bed of the river remaining, therefore, the boundary in such cases.

Article 3 required that other *banco*s be surveyed and that suitable marks be placed in the abandoned river-bed. Over the years, since the convention of 1905, more than 200 detached tracts along the river, called *banco*s under the terms of the agreement, have been eliminated. Some 10,000 acres, formerly on the U.S. side, passed to Mexican sovereignty while nearly 18,000 acres, formerly on the Mexican side, passed to the United States. (U.S. Dept. State, 1963b.)

A convention between Mexico and the United States for the rectification of the Rio Grande in the El Paso-Juarez Valley was concluded at Mexico City on February 1, 1933. (See also Boggs, 1940, p. 67-70.) The agreement was ratified by the respective Governments, and had for its purposes the protection of the valley from flood dangers and the stabilization of the international boundary. The work was carried out under the direction of the International Boundary Commission.

The canalization of the river, from a point below El Paso to the head of Box Canyon, shortened its course from 155 miles to 88 miles between these points. The gradient was thus increased from 1.8 to 3.2 feet per mile. The new channel is a series of tangents connected by smooth curves and should prevent further meanderings of the river.

The convention ordered that "the axis of the rectified channel shall be the international boundary line." Each Government agreed to surrender to the other such parcels of its land as would fall on the opposite side of the new channel. This provision called for the exchange of a considerable area of land, and each Government agreed to acquire the land within its borders at the time for transfer to the other "in absolute sov-

ereignty and ownership." The engineering work on this project was completed in 1938.

The rectification and stabilization project left in dispute an area of less than a square mile in the city of El Paso. An attempt was made to settle this question by arbitration in 1911. When the Commission made its award, the United States claimed it was invalid as, among other things, it disregarded the well-established legal principle that a boundary moves with the river when the movement is due to erosion and deposition rather than an avulsion.

Through the years, many efforts have been made to find a solution to the problem that would satisfy both sides. A convention concluded between Mexico and the United States on August 29, 1963, provided for the rectification of the Rio Grande in the manner of the 1933 project.

The relocated boundary follows a new channel which approximates the position of the river in 1864. This involved the purchase by the United States from its citizens of some 630 acres for transfer to Mexico, and the transfer of 193 acres by Mexico on the north end of the Cordova tract to the United States. The Cordova tract of 386 acres had been cut off from Mexico in 1899 by a relocation of the river to control floods. It remained under Mexican sovereignty, but utilization of the physically detached area was difficult.

The estimated value of the land and improvements acquired by the United States is \$20 million. The costs of the canalization and the replacement of the six existing bridges was borne equally by both Governments. The new channel is concrete lined and of a size to carry 18,000 cubic feet per second with 3.3 feet of freeboard. The minimum radius of curvature is 1,640 feet. It is expected that the new channel, 4.3 miles in length, will prevent further movement of the bed of the Rio Grande.

Ratifications of the convention were exchanged by the two Governments on January 14, 1964 (15 UST 21; TIAS 5515).

The present boundary lines of Texas are described as follows: Beginning in the Gulf of Mexico, at the outlet of Sabine Lake, the line passes northward through the middle of Sabine Lake and up the middle of the Sabine River " to the point where the river intersects the parallel of 32°; thence north along the meridian of that point of intersection to the point where that meridian intersects the Red River; thence up the south bank of the Red River along the south fork to the 100th meridian west of Greenwich; thence north on that meridian to the parallel of 36°30'; west on that parallel to the meridian of 103° as marked; thence south along

* An act of Congress, July 5, 1848 (9 Stat. L. 245), gave Texas the right to extend its boundary into the Sabine River and Lake to coincide with the west boundary of Louisiana.

the 103d meridian to the parallel of latitude of 32°; thence west on that parallel to its point of intersection with the Rio Grande; thence down the midchannel of the Rio Grande to the boundary line between the United States and Mexico; thence following that line see p. 27) to the Gulf.

The extension of the international boundary into the Gulf of Mexico is defined by the treaty signed November 23, 1970. It provides that the seaward boundary shall begin at the mouth of the Rio Grande and pass to a fixed point at lat 25°57'22.18" N., long 97°08'19.76" W.; and thence by the arc of a great circle to a point 12 nautical miles from the baseline used in the delineation of the shore (lat 25°58'30.57" N.; long 96°55'27.37" W.). See page 44 on "Territorial Waters" (TIAS 7313).

Further provisions of the same treaty provide solutions for boundary problems in both the Rio Grande and the Colorado Rivers. Article I provides for changes in the location of the channel in the Presidio and Hidalgo, Texas, areas by engineering works; the new channel to become the boundary. The transfer of sovereignty following the purchase of private lands by the two governments is to be effected in the manner discussed in the "elimination of the bancos" referred to above.

Article III B provides that one of the contracting States may restore the river to its previous position when it has lost territory by an avulsion. Such restoration is to be done by the State losing the land, at its own expense, after notifying the other State. The restoration must be done within 3 years, and the area involved must not be over 250 hectares nor the number of inhabitants affected more than 100.

Other provisions set up guidelines for action on the part of the contracting parties and the boundary commission for solution of problems caused by the shifting of the river bed.

Monuments are required to be placed on international bridges over the Rio Grande and the Colorado, exactly over the boundary and changed in position if the movement of the river bed makes it necessary.

The construction of Falcon and Amistad Dams on the lower Rio Grande left the international boundary at the bottom of the reservoirs. To mark the lines of jurisdiction through the reservoirs, 15 monuments were set directly above the old channel, and their positions were determined by surveying. These monuments extend some 23 miles through Falcon reservoir. The legal boundary is then represented by a series of tangents connecting these points. (Minute 199 of the International Boundary Commission, Dec. 15, 1953.) In Amistad Reservoir, the line is marked by 28 floats in a distance of 20 miles (Minute 232, dated May 9, 1968).

MICHIGAN

Michigan was organized as a Territory June 30, 1805, from the northeastern part of Indiana Territory. (See fig. 31.) The following clause from the act dividing Indiana Territory defines its limits (2 Stat. L. 309):

" * * from and after the thirtieth day of June next, all that part of the Indiana territory which lies north of a line drawn east from the southerly bend or extreme of Lake Michigan, until it shall intersect Lake Erie, and east of a line drawn from the said southerly bend through the middle of said lake to its northern extremity, and thence due north to the northern boundary of the United States, shall, for the purpose of temporary government, constitute a separate territory, and be called Michigan.

The enabling act for Illinois, passed in 1818, contained a provision transferring to Michigan Territory the portion of Illinois Territory not included in the State of that name and also an area of 5,880 square miles north of lat 42°30' N., then a part of Indiana Territory. The following is the text of the clause referred to (3 Stat. L. 431):

" * * all that part of the territory of the United States lying north of the State of Indiana, and which was included in the former Indiana territory, together with that part of the Illinois territory which is situated north of and not included within the boundaries prescribed by this act, to the state thereby authorized to be formed, shall be, and hereby is, attached to and made a part of the Michigan territory.

On June 28, 1834, an act was passed extending the limits of the Territory of Michigan to Missouri River. The clause of the act relating to this area is as follows (4 Stat. L. 701):

" * * all that part of the territory of the United States bounded on the east by the Mississippi River, on the south by the state of Missouri, and a line drawn due west from the northwest corner of said state to the Missouri river; on the southwest and west by the Missouri river and the White Earth river, falling into the same; and on the north, by the northern boundary of the United States, shall be, and hereby is, for the purpose of temporary government, attached to and made a part of, the territory of Michigan.

Michigan was admitted to the Union on January 26, 1837 (5 Stat. L. 144), with the proviso and boundaries given in the enabling act (5 Stat. L. 49) as follows:

Provided, always, and this admission is upon the express condition, that the said State shall consist of and have jurisdiction over all the territory included within the following boundaries, and over none other, to wit:

Beginning at the point where the above-described northern boundary of the State of Ohio intersects the eastern boundary of the State of Indiana, and running thence with the said boundary line of Ohio, as described in the first section of this act, until it intersects the boundary line between the United States and Canada in Lake

Erie; thence with the said boundary line between the United States and Canada, through the Detroit river, Lake Huron, and Lake Superior, to a point where the said line last touches Lake Superior; thence in a direct line through Lake Superior to the mouth of the Montreal river; thence through the middle of the main channel of the said river Montreal, to the middle of the Lake of the Desert; thence in a direct line to the nearest headwater of the Menomonee river; thence through the middle of that fork of the said river first touched by the said line, to the main channel of the said Menomonee river; thence down the center of the main channel of the same, to the center of the most usual ship channel of the Green bay of Lake Michigan; thence through the center of the most usual ship channel of the said bay to the middle of Lake Michigan; thence through the middle of Lake Michigan, to the northern boundary of the State of Indiana, as that line was established by the act of Congress of the nineteenth of April, eighteen hundred and sixteen; thence due east, with the north boundary line of the said State of Indiana, to the northeast corner thereof; and thence south, with the east boundary line of Indiana to the place of beginning.

Wisconsin Territory was formed in 1836 from the western part of Michigan Territory.

When the Territory of Wisconsin was organized, it was supposed that there was an almost continuous water-boundary line between Michigan and Wisconsin.

sin from Green Bay to Lake Superior. Congress in 1838 ordered the running and marking of this boundary (5 Stat. L. 244), but it was soon discovered that the line could not be run as described, for the head of the Montreal River is more than 50 miles from the Lake of the Desert (now called Lac Vieux Desert), which was supposed to be its source. It was therefore recommended that the boundary location be changed to the position later described in the Wisconsin enabling act of 1846 (9 Stat. L. 56-57), and in greater detail in the Michigan constitution of 1850, which reads as follows (Thorpe, 1909, v. 4, p. 1945):

... through Lake Superior to the mouth of the Montreal river; thence through the middle of the main channel of the said river Montreal to the head waters thereof; thence in a direct line to the center of the channel between Middle and South Islands in the Lake of the Desert; thence in a direct line to the southern shore of Lake Brule; thence along said southern shore and down the river Brule to the main channel of the Menominee river; thence down the center of the main channel of the same to the center of the most usual ship channel of the Green Bay of Lake Michigan.

WISCONSIN⁴⁹

Wisconsin was organized as a Territory July 3, 1836, and admitted as a State May 29, 1848.

⁴⁹ For a general description of the boundaries of Wisconsin and a historical sketch of the acts by which they were fixed, see *Thwaites* (1888, v. 11, p. 451-501).

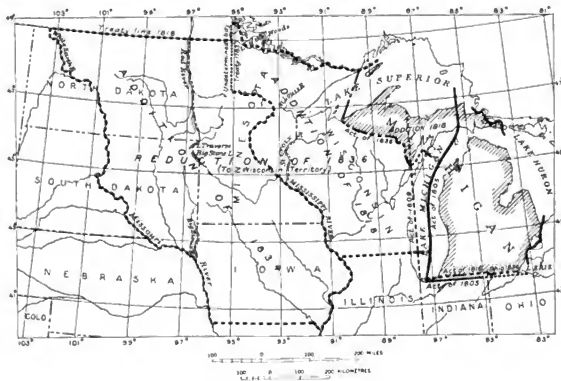


FIGURE 31.—Historical diagram of Michigan.

As originally constituted its area comprised all that part of the former Territory of Michigan which lay west of the present limits of the State of Michigan. (See fig. 31.) The limits are defined in the act for its organization as follows (5 Stat. L. 11):

Bounded on the east, by a line drawn from the northeast corner of the State of Illinois, through the middle of Lake Michigan, to a point in the middle of said lake, and opposite the main channel of Green Bay; and through said channel and Green Bay to the mouth of the Menominee river; thence through the middle of the main channel of said river, to that head of said river nearest to the Lake of the Desert; thence in a direct line to the middle of said lake; thence through the middle of the main channel of the Montreal river, to its mouth; thence with a direct line across Lake Superior to where the territorial line of the United States last touches said lake northwest; thence on the north with the said territorial line to the White-earth river; on the west, by a line from the said boundary line following down the middle of the main channel of White-earth river to the Missouri river, and down the middle of the main channel of the Missouri river to a point due west from the northwest corner of the State of Missouri; and on the south, from said point, due east to the northwest corner of the State of Missouri; and thence with the boundaries of the States of Missouri and Illinois, as already fixed by acts of Congress.

In 1838, all that part of the territory lying west of the Mississippi and of a line drawn due north from its source to the international boundary—that is, all that part which was originally comprised in the Louisiana Purchase and the Red River drainage basin south of the 49th parallel—was organized as the Territory of Iowa. See Iowa, p. 131.)

The enabling act dated August 6, 1846, provided for the admission of Wisconsin as a State. The boundaries were described as follows:

Beginning at the northeast corner of the State of Illinois, that is to say, at a point in the center of Lake Michigan where the line of forty two degrees and thirty minutes of north latitude crosses the same, thence running with the boundary line of the State of Michigan, through Lake Michigan, Green Bay, to the mouth of the Menominee River; thence up the channel of said river to the Brule River, thence up said last mentioned river to Lake Brule; thence along the southern shore of Lake Brule in a direct line to the channel between middle and south islands in the Lake of the Desert; thence in a direct line to the headwaters of the Montreal River, as marked upon the survey made by Captain Cramm; thence down the main channel of the Montreal River to the middle of Lake Superior; thence through the center of Lake Superior to the mouth of the St. Louis River; thence up the main channel of said river to the first rapids in the same, above the Indian village, according to Nicollet's map; thence due south to the main branch of the River St. Croix; thence down the main channel of said river to the Mississippi; thence down the main channel of that river to the northwest corner of the State of Illinois; thence due east with the northern boundary of the State of Illinois to the place of beginning " * * * .

The straight parts of the boundary were surveyed and marked, in 1847, from a point where the Balsam River and the Pine River unite to form the Montreal, S. 74°27' E. to the Lake of the Desert, a distance of 50

miles 67 chains 6 links. The southern part of the line begins at the lower end of Lake Brule and runs N. 59°38' W. for 13 miles 37 chains 66 links to an intersection with the former line in the Lake of the Desert. The notes pertaining to this line can be found in the General Land Office files.

Suit was commenced by Michigan in the U.S. Supreme Court in October 1923 for a redetermination of the Michigan-Wisconsin boundary, the claim being made that the surveys of 1840-47 were not in accord with the descriptions. The change from the previously accepted boundary to that proposed by Michigan would have resulted in a loss to Wisconsin of about 255,000 acres of land, but the Court by decree dated March 1, 1926 (270 U.S. 295; 272 U.S. 398), confirmed Wisconsin's title to the disputed area, principally because

The rule, long settled and never doubted by this court, is that long acquiescence by one State in the possession of territory by another and in the exercise of sovereignty and dominion over it is conclusive of the latter's title and rightful authority.

A resurvey of the Michigan-Wisconsin line was completed in 1929 by commissioners representing the two States. There are now 160 concrete monuments on this 65-mile line. This work was executed in accordance with the Supreme Court decree of November 22, 1926.

The boundary from the Lake Brule to the mouth of the Menominee is practically that described in the enabling act and

follows the channels of the Brule and Menominee wherever they are free from islands: " * * * wherever islands are encountered above Quinnesec Falls the line follows the channel nearest the Wisconsin mainland, so as to throw all such islands into Michigan; and " * * * wherever islands are encountered below Quinnesec Falls the line follows the channel nearest the Michigan mainland, so as to throw all such islands into Wisconsin.

Through Green Bay the line was fixed as claimed by Wisconsin and includes in that State Washington, Detroit, Plum, Rock, and some smaller islands.³¹

A further decree of the Supreme Court, handed down in 1936 (297 U.S. 547), confirmed the earlier decree and defined the boundary through Green Bay to the middle of Lake Michigan by bearings and distances. Following this, the States of Michigan, Wisconsin, and Minnesota entered into a compact to define angle points along their common boundaries that fall in the Great

³¹ This translation of the French name "Lac Vieux Desert" is misleading. The French word "Desert" refers to a clearing, an open space, a wild and solitary place, not to an area devoid of vegetation from lack of water.

³² For a historical description of this boundary and notes relating to the settlement of the dispute by the U.S. Supreme Court, see Martin (1930, p. 108-163).

Lakes or bays adjoining them, and to reference these points by suitable marks along the shore, the geodetic positions of which were to be determined.

To define the boundary between Michigan and Wisconsin in the middle of Lake Michigan, as required by the enabling acts admitting these States, seven points were selected and named A to G, and their geodetic positions were published. Point A is on an eastward continuation of the Illinois-Wisconsin boundary. Point G is at the centerline of the lake where the boundary through Green Bay intersects it.

The geodetic coordinates of the seven points are:

Point	Latitude (N.)	Longitude (W.)
A	42°29'37"	87°01'15"
B	43°22'50"	87°08'50"
C	43°42'03"	87°07'20"
D	44°07'55"	87°00'45"
E	44°52'50"	86°41'10"
F	45°05'20"	86°29'30"
G	45°14'10"	86°14'55"

Two points were selected to define the boundary for Michigan, Wisconsin, and Minnesota in Lake Superior. This line extends from the international boundary at the point where it enters Pigeon Bay to the point where the Michigan-Wisconsin boundary enters the Montreal River. These points were labeled N and M. Their coordinates are:

Point	Latitude (N.)	Longitude (W.)
M	46°34'05"	90°25'05"
N	49°00'50"	89°29'00"

The line between Wisconsin and Minnesota, being described in the enabling act admitting Wisconsin as passing "through the center of Lake Superior to the mouth of the St. Louis River" is defined by four points, A to D. Point A is at the midpoint of line M-N. Point D is referenced to the ends of the breakwaters at the entrance to the Duluth Superior Harbor. The geodetic coordinates of these points are:

Point	Latitude (N.)	Longitude (W.)
A	47°17'32"	89°59'00"
B	47°18'35"	90°39'15"
C	46°54'10"	91°31'25"
D	46°42'39.875"	92°00'24.571"

All these points representing the centerline of Lake Michigan or Lake Superior are defined as equidistant from two points on the opposite shorelines, except point G, which had been fixed by a U.S. Supreme Court decree of March 12, 1936. The true azimuths and distances, in statute miles between successive points, are given in the compact (fig. 32).

This agreement on the boundaries of the three States was approved by Congress in 1948 (62 Stat. 1152).

On March 3, 1847, a supplementary act for the admission of Wisconsin was passed by Congress, in which the western boundary of the proposed State was described as follows:

That the assent of Congress is hereby given to the change of boundary proposed in the first article of said constitution, to wit: leaving the boundary line prescribed in the act of Congress entitled "An Act to enable the People of Wisconsin Territory to form a Constitution and State Government, and for the Admission of such State into the Union," at the first rapids in the river St. Louis; thence in a direct line southwardly to a point fifteen miles east of the most easterly point of Lake St. Croix; thence due south to the main channel of the Mississippi River or Lake Pepin; thence down the said main channel, as prescribed in said act.

Had this act been accepted, it would have given the State an area considerably less than it now has.

The first constitution, completed December 16, 1846 (Qualie, 1919, p. 732-753), accepted the boundaries as described in the enabling act of August 6, 1846, but proposed that Congress consent to the change as described in the later act above referred to. This constitution was rejected by popular vote April 5, 1847 (14,119 ayes, 20,231 noes)—not, however, because of unsatisfactory boundaries.

A second constitution dated February 1, 1848, with the boundaries also as described in the act of August 6, 1846, was accepted by the people but with the proviso (art. 2, sec. 1) that, if Congress approved, the boundary line should run southwesterly from the foot of the rapids of the St. Louis River to the mouth of the Rum River, thence down the Mississippi River as previously described. This boundary would have added materially to the area of the State had it been accepted by Congress.

Congress accepted the constitution dated February 1, 1848, without action on the proviso and by act approved May 29, 1848 (9 Stat. L. 233), admitted Wisconsin as a State.

The admission of Wisconsin to statehood left an area of more than 30,000 square miles west of the St. Croix River, east and north of the Mississippi River, practically without a government. The settlers organized a temporary government and elected a Delegate to Congress who was admitted as the representative of the "Territory of Wisconsin." This area became a part of the Territory of Minnesota by congressional act of March 3, 1849.

The State of Minnesota in 1916 instituted a suit against Wisconsin in the U.S. Supreme Court to have that part of the State boundary line from St. Louis Bay up the St. Louis River to the falls near Fond du Lac finally determined. The Court handed down an opinion March 8, 1920 (252 U.S. 273), and on October 11, 1920 (254 U.S. 14), appointed commissioners to

survey and mark the line. The survey was made on ice during the winter of 1920-21, and the commissioners' report was confirmed by the Court February 7, 1922. The line surveyed (258 U.S. 149) was 18.4 miles in length and was almost entirely over water. Rectangular coordinates were computed for each angle, and suitable reference marks were established on shore.

In 1917, Wisconsin and Minnesota agreed to change their boundary in the Mississippi River by the exchange of two islands. Wisconsin ceded Island No. 72 opposite the City of Winona to Minnesota (Wisconsin Laws, 1917). Minnesota, in return, ceded Baron's Island (now Pettibone Park) opposite the City of LaCrosse, to Wisconsin (Minnesota Laws, 1917). Congress approved the exchange (40 Stat. 959).

The meridian boundary between Wisconsin and Minnesota from the St. Louis River to the St. Croix River was surveyed and marked in 1852 under the General Land Office, by George R. Stuntz, deputy surveyor. (General Land Office, Wisconsin field notes, v. 37, 133.)

For the southern boundary, see Illinois, page 116.

IOWA

Iowa was organized as a Territory by act of June 12, 1838, effective July 3, from a portion of Wisconsin Territory. (See figs. 27, and 31.) The limits were defined as follows in the act (5 Stat. L. 235) creating it:

"... all that part of the present Territory of Wisconsin which lies west of the Mississippi river, and west of a line drawn due north from the headwaters or sources of the Mississippi to the Territorial line.

The approximate position of the outlet of Lake Itasca, which is generally accepted as the source of the Mississippi see footnote 35, p. 25), is lat 47°15' N., long 95°12' W. The river runs northwestward for about 6 miles before it turns east. The north-south boundary line across the western part of the Lake of the Woods is in long 95°09'11.6" W. (p. 14).

The lawmakers in Congress in writing the act creating the Territory of Iowa evidently had in mind their troubles over the Ohio-Michigan boundary, and to avoid any future question as to the power of Congress they reserved the right to divide the new Territory into two or more Territories or to attach any part of it to any other State or Territory.

The following clause from an act passed in 1839 (5 Stat. L. 357) is supplementary to the act above quoted:

That the middle or center of the main channel of the river Mississippi shall be deemed, and is hereby declared, to be the eastern boundary line of the Territory of Iowa, so far or to such extent as the said Territory is bounded eastwardly by or upon said river.

On March 3, 1845, an act was approved for the admission of Iowa to the Union as a State, but the act required that the assent of the people of Iowa be given

to it by popular vote. In this act (5 Stat. L. 742) the boundaries were given as follows:

That the following shall be the boundaries of the said State of Iowa, to wit: Beginning at the mouth of the Des Moines river, at the middle of the Mississippi, thence by the middle of the channel of that river to a parallel of latitude passing through the mouth of the Mankato or Blue-Earth river [lat 44°10' N.], thence west along the said parallel of latitude to a point where it is intersected by a meridian line, seventeen degrees and thirty minutes west of the meridian of Washington city, thence due south to the northern boundary line of the State of Missouri, thence eastwardly following that boundary to the point at which the same intersects the Des Moines river, thence by the middle of the channel of that river to the place of beginning.

These boundaries were not acceptable to the people and by a popular vote were rejected.

Another constitutional convention was held in May 1846, and Congress passed an act (9 Stat. L. 52), approved August 4, 1846, which fixed the boundaries, in accordance with the wishes of the people, as follows:

Beginning in the middle of the main channel of the Mississippi River at a point due east of the middle of the mouth of the main channel of the Des Moines River; thence up the middle of the main channel of the said Des Moines River to a point on said river where the northern boundary line of the State of Missouri, as established by the constitution of that State, adopted June twelfth, eighteen hundred and twenty, crosses the said middle of the main channel of the said Des Moines River; thence westwardly along the said northern boundary line of the State of Missouri, as established at the time aforesaid, until an extension of said line intersect the middle of the main channel of the Missouri River, thence up the middle of the main channel of the said Missouri River, to a point opposite the middle of the main channel of the Big Sioux River, according to Nicollet's map; thence up the main channel of the said Big Sioux River, according to said map, until it is intersected by the parallel of forty-three degrees and thirty minutes north latitude; thence east along said parallel of forty-three degrees and thirty minutes, until said parallel intersect the middle of the main channel of the Mississippi River; thence down the middle of the main channel of said Mississippi River to the place of beginning.

Iowa was finally declared admitted to full statehood by act of December 28, 1846 (James, 1897, p. 163-173; 9 Stat. L. 117).

The admission of Iowa appears to have left a large area to the north and west unattached, which so remained until Minnesota Territory was organized, in 1849.

The act of August 4, 1846, directed that a long-standing dispute between Missouri and Iowa Territory regarding their common boundary (U.S. Cong., 1839b) be referred to the U.S. Supreme Court for adjudication. The area claimed by both was a strip of land about 10 miles wide and 200 miles long, north of the present boundary. Missouri maintained that the clause in that



State's enabling act, "the rapids of the river Des Moines," referred to rapids in the river of that name and not to rapids of a similar name in the Mississippi, also that the Indian boundary line run and marked in 1816 by authority of the United States, known as the Sullivan line, was erroneously established. A line claimed by Missouri was run by J. C. Brown in 1837 by order of the State legislature.

The U.S. Supreme Court decided in 1849 that the Sullivan line of 1816 is the correct boundary and ordered that it be resurveyed. The report of the commissioners appointed by the Court to re-mark the line was accepted in 1851.⁴²

So many of the marks on this line as established in 1850 had become lost or destroyed that the U.S. Supreme Court in 1896 ordered that certain parts be re-established, especially those between mileposts 50 and 55. (160 U.S. 688.) Accordingly 20 miles of line was resurveyed by officers of the U.S. Coast and Geodetic Survey in 1896, and durable monuments of granite or iron were established thereon.⁴³

The geographic position of milepost 40 was determined as lat 40°34.4' N., long 95°51' W. and that of No. 60 as lat 40°34.6' N., long 93°28' W.

The survey of the north boundary of Iowa on the parallel of 43°30', authorized by congressional act of March 3, 1849, was completed in 1852. The position for each end of the line and for several intermediate points was determined astronomically.⁴⁴

In 1943 the States of Iowa and Nebraska agreed to alter their common boundary to coincide with the main channel of the Missouri River as it was at that time. This compact was approved by Congress on July 12, 1943. (57 Stat. 494.)

A similar agreement had been made with Missouri in 1939 along the Des Moines River. (See p. 118.)

MINNESOTA

The Territory of Minnesota was organized on March 3, 1849. It comprised the portion of the former Territory of Iowa outside the limits of the present State of Iowa and extended east to the west boundary line of Wisconsin. (See fig. 31.) The terms of the act creating this Territory (9 Stat. L. 403), so far as they relate to its boundary, are as follows:

all that part of the territory of the United States which lies within the

following limits, to wit: Beginning in the Mississippi River, at the point where the line of forty-three degrees and thirty minutes of north latitude crosses the same: thence running due west on said line, which is the northern boundary of the State of Iowa, to the northwest corner of the said State of Iowa; thence southerly along the western boundary of said State to the point where said boundary strikes the Missouri River; thence up the middle of the main channel of the Missouri River to the mouth of the White-earth River; thence up the middle of the main channel of the White-earth River to the boundary line between the possessions of the United States and Great Britain: thence east and south of east along the boundary line between the possessions of the United States and Great Britain to Lake Superior; thence in a straight line to the northernmost point of the State of Wisconsin in Lake Superior; thence along the western boundary line of said State of Wisconsin to the Mississippi River; thence down the main channel of said river to the place of beginning.

Minnesota was admitted as a State on May 11, 1858, with the same boundaries that it has at present (11 Stat. L. 285). These are given in the enabling act (11 Stat. L. 166) as follows:

Beginning at the point in the center of the main channel of the Red River of the North, where the boundary line between the United States and the British Possessions crosses the same; thence up the main channel of said river to that of the Bois des Sioux River; thence [up] the main channel of said river to Lake Travers; thence up the center of said lake to the southern extremity thereof; thence in a direct line to the head of Big Stone Lake; thence through its center to its outlet; thence by a due south line to the north line of the State of Iowa; thence east along the northern boundary of said State to the main channel of the Mississippi River; thence up the main channel of said river, and following the boundary line of the State of Wisconsin, until the same intersects the Saint Louis River; thence down said river to and through Lake Superior, on the boundary line of Wisconsin and Michigan, until it intersects the dividing line between the United States and the British Possessions; thence up Pigeon River, and following said dividing line, to the place of beginning.

The western boundary line from the Big Sioux River to the Minnesota River was surveyed and marked in 1859-60 under the General Land Office. (See p. 20 for the survey of the northern boundary, p. 131 for the survey of the eastern boundary, and Iowa for the survey of the southern boundary.)

The western boundary of Minnesota from Lake Traverse to Big Stone Lake was meandered, and the line from Big Stone Lake to the Iowa line, a distance of 124 miles 5.23 chains, was surveyed and marked in 1859 under the General Land Office, (Winchell, 1905.)

North of the 49th parallel and separated from the main part of Minnesota by the Lake of the Woods is a land area of nearly 124 square miles,⁴⁵ including a

⁴² For a history of the line, discussion of the case, report of commissioners, and description of the survey, see 7 Howard 660 and 10 Howard 1.

⁴³ For a full report, which contains extracts from notes of previous surveys, see 165 U.S. 118, and U.S. Coast and Geod. Survey (1896, p. 51).

⁴⁴ For an illustrated description of the survey of this line, see Iowa, Dept. of History and Archives (1929, p. 483-500).

⁴⁵ This area is given on General Land Office township plat amounts to 123.87 square miles.

number of small islands, which became U.S. territory by the treaties of 1783 and 1818. (See p. 12, 14.) The inclusion of this area in the United States resulted from the use of inaccurate maps by the treaty makers and has been described as a "political-geographical curiosity of a boundary that a glance at the map will show, that no one could have foreseen, and that would be inexplicable without some knowledge of the steps in the process by which it was brought about." (Internat. Joint Comm., United States and Canada, 1917, p. 140.)

By agreement between the States of Minnesota and North Dakota and by the approval of Congress, about 20 acres of land were transferred to North Dakota, August 25, 1961 (75 Stat. 399). This parcel of land is near the city of Fargo. Moving the channel of the Red River to provide flood control cut off a bend of the river and thus made access from Minnesota difficult.

For the boundary with Wisconsin, see p. 130.

NORTH DAKOTA AND SOUTH DAKOTA

The Territory of Dakota was organized on March 2, 1861, from parts of Minnesota and Nebraska Territories. (See figs. 33, 34, 35.) The following extract from the act of organization (12 Stat. L. 239) defines its original limits:

"... all that part of the territory of the United States included within the following limits, namely: commencing at a point in the main channel of the Red River of the North where the forty-ninth degree of north latitude crosses the same; thence up the main channel of the same and along the boundary of the State of Minnesota to Big Stone Lake; thence along the boundary line of the said State of Minnesota, to the Iowa line; thence along the boundary line of the State of Iowa to the point of intersection between the Big Sioux and Missouri rivers; thence up the Missouri river, and along the boundary line of the Territory of Nebraska to the mouth of the Nebraska or Running Water river; thence following up the same, in the middle of the main channel thereof, to the mouth of the Kaha Paha or Turtle Hill river; thence up said river to the forty-third parallel of north latitude; thence due west to the present boundary of the Territory of Washington; thence along the boundary line of Washington Territory, to the forty-ninth degree of north latitude; thence east along said forty-ninth degree of north latitude to the place of beginning, be, and the same is hereby, organized into a temporary government by the name of the Territory of Dakota.

In 1863 the Territory of Idaho was formed, its area having been taken from Washington, Dakota, and Nebraska. (See Idaho, p. 156.)

In 1864, in the act creating Montana Territory, the area described in the following paragraph was temporarily restored to the jurisdiction of Dakota (13 Stat. L. 92).

That, until congress shall otherwise direct, all that part of the Territory of Idaho included within the following boundaries, to wit: Commencing at a point formed by the intersection of the thirty-third degree of longitude west from Washington with the forty-first degree of north latitude; thence along said thirty-third degree of longitude to the crest of the Rocky Mountains; thence northward along the said crest of the Rocky Mountains to its intersection with the forty-fourth degree and thirty minutes of north latitude; thence eastward along said forty-fourth degree thirty minutes north latitude to the thirty-fourth degree of longitude west from Washington; thence northward along said thirty-fourth degree of longitude to its intersection with the forty-fifth degree north latitude; thence eastward along said forty-fifth degree of north latitude to its intersection with the twenty-seventh degree of longitude west from Washington; thence south along said twenty-seventh degree of longitude west from Washington to the forty-first degree north latitude; thence west along said forty-first degree of latitude to the place of beginning shall be and is hereby, incorporated temporarily into and made part of the Territory of Dakota.

All but a small part of this area was included in the Territory of Wyoming in 1868.

In 1870 and 1882 small areas were transferred to Nebraska. (See p. 137, 138.) In 1873 an area of about 2 square miles was transferred to Montana. (See p. 150.)

By the enabling act of February 22, 1889 (25 Stat. L. 676), the Territory of Dakota was divided into two parts, North Dakota and South Dakota:

The area comprising the Territory of Dakota shall ... be divided on the line of the seventh standard parallel produced due west to the western boundary of said Territory: ...

Each part, having adopted a constitution, was declared admitted as a State by presidential proclamation, dated November 2, 1889.

The boundary line between North and South Dakota, which is the seventh standard parallel north, of the public-land survey, was surveyed and marked in 1891-92. (See fig. 33.) The marks are placed at each half mile and are substantial cut-stone posts 7 feet long by 10 inches square at top, set 3½ feet in the ground. The initials of the States are cut on the north and south sides, and the mile numbers are on the east. The first mark was placed 9 chains west of the Bois des Sioux River bed. The measured distance to the east bank of the Missouri was 190 miles 8.25 chains. At a distance of 360 miles 45.35 chains, the east boundary of Montana was intersected at a point 48.35 chains north of its milepost 65. The Montana line at this place was found to bear 1°01'30" to the west.

Boundary post 333, which is near the west end of this line, is in lat 45°56'42.64" N. and long 103°28'21.85" W., 1927 N.A.D. Where the Chicago & North Western Railway crosses this boundary, the latitude is 45°56'07.7" N. and the longitude is 98°07'42.1" W. Near the east end of the line the latitude of a point was found to be 45°56'09.7" N. (Marshall, 1916, p. 296.) The northeast corner of North Dakota, which is in the middle of the Red River where it crosses the 49th-parallel boundary, is in long 97°13'42.58" W.

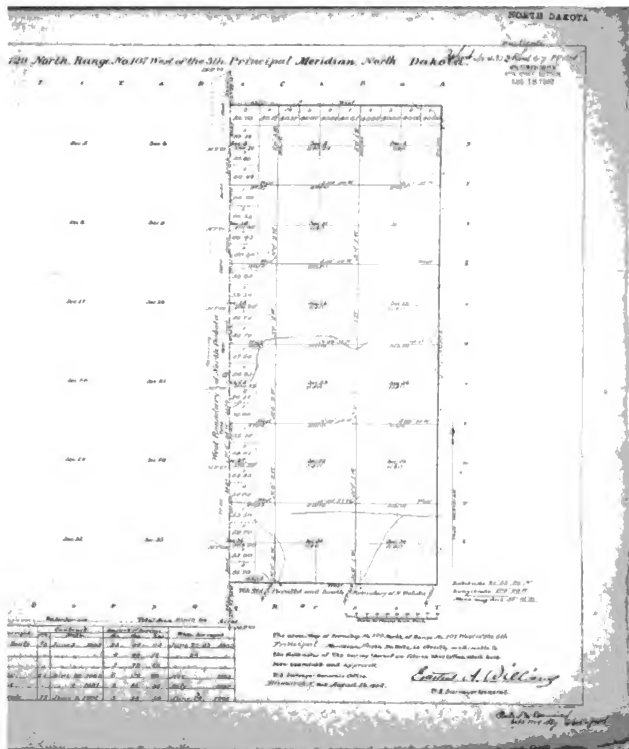


FIGURE 33.—Township plat showing the relation of the public land surveys to the boundaries of North Dakota, South Dakota, and Montana.

Milestone 4 on the Wyoming-South Dakota line was located by the U.S. Coast and Geodetic Survey in 1912; it is at lat 43°03'30.61" N. and long 104°03'10.07" W.

NEBRASKA

The west boundary of South Dakota as far north as the northeast corner of Wyoming, lat 45° N., was surveyed in 1877, commencing at a post set in 1869 for the northwest corner of Nebraska. That part of the boundary north of lat 45° N. was surveyed in 1885. (See p. 150.) The entire west boundary of the State was resurveyed in 1904 and marked with 6-foot stone posts at each mile except from the 39th to the 104th, inclusive, which were marked with iron posts for the Black Hills National Forest. The measured distance to the northeast corner of Wyoming was 139 miles 8.78 chains, and to the northwest corner of South Dakota, 204 miles 48.26 chains. From the northeast corner of Wyoming to the southeast corner of Montana the line runs east a distance of 70.68 chains. This jog in the State line is due to errors in the location of the 27th meridian as determined from two widely separated stations; the position brought down from the north (see Montana, east boundary, p. 150) is 41.6" too far east, and that brought up from the south (see Nebraska, 41st parallel boundary, p. 138) is 23.3" too far west.

The Territory of Nebraska was formed on May 30, 1854, from the northwestern part of Missouri Territory. Its original limits are defined as follows in the act of organization (see fig. 35; 10 Stat. L. 277):

Beginning at a point in the Missouri River where the fortieth parallel of north latitude crosses the same; then west on said parallel to the east boundary of the Territory of Utah, on the summit of the Rocky Mountains; thence on said summit northward to the forty-ninth parallel of north latitude; thence east on said parallel to the western boundary of the territory of Minnesota; thence southward on said boundary to the Missouri River; thence down the main channel of said river to the place of beginning, be, and the same is hereby, created into a temporary government by the name of the Territory of Nebraska.

This area was reduced in 1861 by the formation of the Territories of Colorado and Dakota and further reduced in 1863 by the formation of the Territory of Idaho. (See Colorado, p. 141, Dakota, p. 134, and Idaho, p. 156.)

In 1861, in the act creating the Territory of Dakota, a small area was added to the west end of Nebraska. The following is the text of the act making this addition (12 Stat. L. 244):

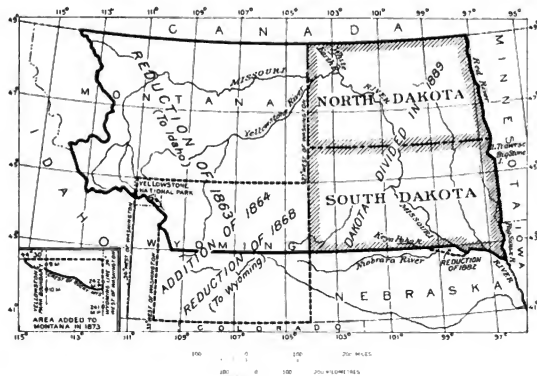


FIGURE 34.—Historical diagram of North Dakota and South Dakota.

That, until Congress shall otherwise direct, the portion of the Territories of Utah and Washington between the forty-first and forty-third degrees of north latitude, and east of the thirty-third meridian of longitude west from Washington, shall be, and is hereby, incorporated into and made a part of the Territory of Nebraska.

The act for the admission of Nebraska to the Union was passed by Congress February 9, 1867, over a presidential veto, and, the conditions having been accepted by the people, statehood was declared in effect by proclamation of the President dated March 1, 1867 (14 Stat. L. 391, 821).

The limits of the State are defined as follows in the enabling act (13 Stat. L. 47), approved April 19, 1864.

That the said state of Nebraska shall consist of all the territory included within the following boundaries, to wit: Commencing at a point formed by the intersection of the western boundary of the state of Missouri with the fortieth degree of north latitude; extending thence due west along said fortieth degree of north latitude to a point formed by its intersection with the twenty-fifth degree of longitude west from Washington; thence north along said twenty-fifth degree of longitude to a point formed by its intersection with the forty-first degree of north latitude; thence west along said forty-first degree of north latitude to a point formed by its intersection with the twenty-seventh degree of longitude west from Washington; thence north along said twenty-seventh degree of west longitude to a point formed by its intersection with the forty-third degree of north latitude; thence east along said forty-third degree of north latitude to the Raya Paha [Kawpaha] river; thence down the middle of the channel of said river, with its meanderings, to its junction with the Niobrara river; thence down the middle of the channel of said Niobrara river, and following the meandering thereof, to its junction with the Missouri river; thence down the middle of the channel of said Missouri river, and following the meanderings thereof, to the place of beginning.

As the result of a sudden change in the course of the Missouri, an area of about 5 square miles, which had previously been a part of Dakota Territory, was left on the Nebraska side of the river a short distance above Sioux City, Iowa. (See fig. 35.) To avoid future complications, this tract was given to Nebraska by an act approved April 28, 1870, "to redefine a portion of the boundary line between the State of Nebraska and the Territory of Dakota," as follows (16 Stat. L. 93):

That so soon as the State of Nebraska, through her legislature, has given her consent thereto, the centre of the main channel of the Missouri River shall be the boundary line between the State of Nebraska and the Territory of Dakota, between the following points, to wit: Commencing at a point in the centre of said main channel, north of the west line of section twenty-four in township twenty-nine north, of range eight east of the sixth principal meridian, and running along the same to a point west of the most northerly portion of fractional section seventeen, of said township twenty-nine north, of range nine east of said meridian, in the State of Nebraska.

For plat showing the changes, see General Land Office files, Nebraska township plats, volume 9. This change was approved by Nebraska by acts of February 9, 1871.

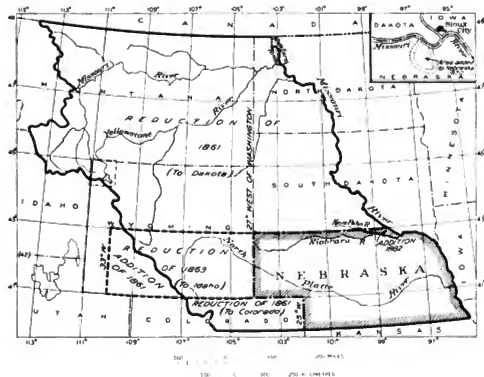


FIGURE 35.—Historical diagram of Nebraska.

In 1882 an act was passed transferring to this State from Dakota a small area lying between the Keya Paha River and the 43d parallel of latitude. The following is an extract from this act (22 Stat. 35):

That the northern boundary of the State of Nebraska shall be, and hereby is, subject to the provisions hereinafter contained, extended so as to include all that portion of the Territory of Dakota lying south of the forty-third parallel of north latitude and east of the Keyapaha River and west of the main channel of the Missouri River.

In 1943, the States of Iowa and Nebraska agreed to make their common boundary coincide with the main channel of the Missouri River as it existed at that time. (See p. 133.)

By act of March 1, 1905, Congress approved the compact between Nebraska and South Dakota, fixing the boundary south of Union County, S. Dak., in the middle of the main channel of the Missouri River as it then existed.

The north boundary of Nebraska from the middle of the Keya Paha westward was surveyed in 1874, after the proper position for the 43d parallel had been found from an astronomic station near the east end of the line. In 1893 this line was retraced, and 7-foot cut-stone posts were placed at each mile and half-mile corner on the line as established in 1874. The stone set in 1869 for the northwest corner of the State was also replaced by one of the 7-foot posts. The reported length of this line was 224 miles 12.13 chains.

The U.S. Coast and Geodetic Survey determined positions for mile-posts 56 and 222½ in 1912. The 1927 N.A.D. position of milepost 56 is lat 42°59'53.37" N., long 100°45'04.67" W., and that of milepost 222½ is lat 43°00'06.15" N., long 104°00'02.73" W.

In 1893 the north boundary from the Keya Paha River eastward was surveyed and marked with 7-foot cut-stone posts, and the distance was given as 57 miles 72.70 chains to a terminal mark 72.82 chains from high-water mark on the west bank of the Missouri River.

The west boundary of Nebraska, including the part along the 41st parallel, was surveyed in 1869 under the direction of the General Land Office. The initial astronomic station was at Julesburg, Colo., the position of which was taken as lat 40°59'01.56" N. and long 25°18'30.90" W. of Washington. From this station a line was measured due north 89.65 chains to the computed position of the 41st parallel, thence due east 16 miles 10.47 chains to the computed position of the 25th degree of longitude west from Washington, where a

6-foot limestone corner post was established. From this point a random line was run due south to the calculated position of the 40th parallel as determined by astronomic observations. At the point thus found, a limestone post 6 feet long by 1 foot square at top, appropriately marked, was set in a mound of earth, from which the line was run north, and marks (most of them wooden posts) were set for each mile, a distance of 68 miles 79.59 chains to the 41st parallel mark.

From the Julesburg meridian mark on the 41st parallel, the line was run west to the intersection with the 27th meridian, a total distance on the parallel of 104 miles 72.07 chains. The correct position of the 27th meridian was found from a telegraphic determination of longitude at a station 8 miles 49.45 chains east. From the intersection of the 41st parallel and the 27th meridian, where a 6-foot stone post was set, the line was run northward on the 27th meridian to the northwest corner of Nebraska.

The Nebraska-Wyoming line was retraced in 1908 and re-marked with granite posts 6 feet long and 10 inches square at the top, each set 3 feet in the ground and marked with "WYO" on the west, "NEB" on the east, and the mile number on the south. The measured length of this line was 139 miles 22.43 chains.

For a description of the survey of the south boundary, see Kansas.

KANSAS

The Territory of Kansas was organized on May 30, 1854, from a part of Missouri Territory. (See fig. 27.) The following clause from the act of organization defines its limits:²⁴

" * * * all that part of the Territory of the United States included within the following limits, except such portions thereof as are hereinafter expressly exempted from the operations of this act, to wit: beginning at a point on the western boundary of the State of Missouri, where the thirty-seventh parallel of north latitude crosses the same; thence west on said parallel to the eastern boundary of New Mexico; thence north on said boundary to latitude thirty-eight; thence following said boundary westward to the east boundary of the Territory of Utah, on the summit of the Rocky Mountains; thence northward on said summit to the fortieth parallel of latitude; thence east on said parallel to the western boundary of the State of Missouri; thence south with the western boundary of said State to the place of beginning, be, and the same is hereby, created into a temporary government by the name of the Territory of Kansas.

Kansas was admitted into the Union on January 29, 1861, with its present boundaries, which are thus defined in the enabling act (12 Stat. L. 126):

" * * * the said State shall consist of all the territory included within the following boundaries, to wit: beginning at a point on the western boundary of the State of Missouri, where the thirty-seventh parallel of north latitude crosses the same; thence west on said parallel to the twenty-fifth meridian longitude west from Washington; thence north

²⁴ 10 Stat. L. 283. The excepted parts were Indian lands.

on said meridian to the fortieth parallel of latitude; thence east on said parallel to the western boundary of the State of Missouri; thence south with the western boundary of said State to the place of beginning.

It is noteworthy that Kansas was the first State to be admitted to the Union having a meridional boundary referred to the Washington meridian.

The part of Kansas Territory west of the 25th Washington meridian, detached by this act, was made a part of the Territory of Colorado 30 days later.

The southern boundary of Kansas was surveyed in 1857. The initial point on the 37th parallel was found from astronomic observations on the Kansas-Missouri boundary line in long 94°40'26.3" W. and was checked by observations at 10 other astronomic stations. Marks were left at irregular intervals.

The General Land Office resurveyed this line from the 166th mile to the 226th mile in 1872 and from the 207th mile to the 268th mile in 1873.

Two boundary stones were located by triangulation in 1902 on the Kansas-Oklaoma line—boundary stone 160, a sandstone post 5 by 12 by 20 inches, projecting about 9 inches above ground, marked "160" on top, "K" on the north side, and "I T" on the south side, in lat 36°50'55.03" N., long 97°54'01.75" W.; and boundary stone 163, a stone marked as above described except that "163" is the number on top, in lat 36°59'54.78" N., long 97°57'16.23" W. These values are as corrected to 1927 N.A.D.

The U.S. Coast and Geodetic Survey in 1935 determined the position of the southeast corner of Kansas as lat 36°59'54.75" N., long 94°37'03.74" W.

The boundary between Kansas and Nebraska is the base line of the sixth principal meridian, which was used for land surveys in the two States. The survey of the boundary was begun in 1854, and 108 miles of line west of the Missouri River were run and marked; the marks with few exceptions were small wooden posts or stones. The initial position for the 40th parallel was found by calculation and measurement from an astronomic station (lat. 40°01'10.3" N.) on the east side of the Missouri about 2½ miles southeast of the mouth of the Nemaha. An initial monument for this line, made of cast iron, was set up in 1855 at a point 52.55 chains west of the right bank of the Missouri, the marks on which are "NEBRASKA" on the north, "1854" on the east, "40° N LAT" on the west, and "KANSAS" on the south. This line was resurveyed and re-marked in 1855-56, and the marks on the former line were destroyed. From the 108th mile the line was extended west to the Rocky Mountains in 1858-59 as a base of the land survey. (See General Land Office files, Kansas exterior plats, v. 4, p. 2.)

For the eastern boundary, see Missouri (p. 118).

The western boundary of Kansas was surveyed in 1872 and was reestablished from the 174th milepost south to the Oklahoma line in 1908 by the General Land Office. Most of the marks left were small stones. Several marks on this line have been connected with triangulation stations, giving the following results:

Boundary mark	Latitude (N)	Longitude (W)
68 ¹ -----	39°00'22. 6"	102°02'45. 1"
73 ^{1 1/2} -----	38°58'31. 0"	102°02'43. 4"
78 ¹ -----	38°51'30. 1"	102°02'42. 5"
83 ¹ -----	38°47'09. 3"	102°02'41. 8"
130 ¹ -----	38°06'01. 5"	102°02'41. 5"
140 ² -----	37°57'18. 0"	102°02'38. 4"

¹ U.S. Coast and Geod. Survey Rept. for 1902, p. 253

² U.S. Geol. Survey 18th Ann. Rept., pt. 1, p. 184

OKLAHOMA

The Territory of Oklahoma was organized under the act of May 2, 1890, from the western part of the Indian Territory. (See p. 51 and fig. 36.) Its limits as originally constituted were set forth in the act as follows (26 Stat. L. 81-82):

That all that portion of the United States now known as the Indian Territory, except so much of the same as is actually occupied by the five civilized tribes, and the Indian tribes within the Quapaw Indian Agency, and except the unoccupied part of the Cherokee Outlet, together with that portion of the United States known as the Public Land Strip [Donaldson, 1884, p. 462, 1187], is hereby erected into temporary government by the name of the Territory of Oklahoma. The portion of the Indian Territory included in said Territory of Oklahoma is bounded by a line drawn as follows: Commencing at a point where the ninety-eighth meridian crosses the Red River; thence by said meridian to the point where it crosses the Canadian River; thence along said river to the west line of the Seminole country; thence along said line to the north fork of the Canadian River; thence down said river to the west line of the Creek country; thence along said line to the northwest corner of the Creek country; thence along the north line of the Creek country, to the ninety-sixth meridian; thence northward by said meridian to the southern boundary line of Kansas; thence west along said line to the Arkansas River; thence down said river to the north line of the land occupied by the Ponca tribe of Indians, from which point the line runs so as to include all the lands occupied by the Ponca, Tonkawa, Otoe, and Missouri, and the Pawnee tribes of Indians until it strikes the south line of the Cherokee Outlet, which it follows westward to the east line of the State of Texas; thence by the boundary line of the State of Texas to the point of beginning; the Public Land Strip which is included in said Territory of Oklahoma is bounded east by the one hundredth meridian, south by Texas, west by New Mexico, north by Colorado and Kansas. Whenever the interest of the Cherokee Indians in the land known as the Cherokee Outlet shall have been extinguished and the President shall make proclamation thereof, said outlet shall thereupon and without further legislation become a part of the Territory of Oklahoma. Any other lands within the Indian Territory not embraced within these boundaries, shall hereafter become a part of the Territory of Oklahoma whenever the Indian nation or tribe owning such lands shall signify to the

President of the United States in legal manner its assent that such lands shall so become a part of said Territory of Oklahoma, and the President shall thereupon make proclamation to that effect.

The Public Land Strip was a rectangular part of the land ceded to the United States by Texas that lay south of Kansas and east of New Mexico. For many years this area (5,740 square miles) was popularly known as "No Man's Land." Its west boundary, which has been generally accepted as the Cimarron meridian as established by the General Land Office in 1881, is 34.25 miles in length. The latitude and longitude of the north end of this boundary, which is the northeast corner of New Mexico, are $37^{\circ}00'00.47''$ N. and $103^{\circ}00'06.63''$ W., 1927 N.A.D.

The U.S. Supreme Court having decreed that the area east of the 100th meridian and between the two main forks of the Red River did not belong to Texas (see p. 122), Congress, on May 4, 1896, enacted (29 Stat. L. 113)

That, the portion of the Territory of Oklahoma bounded by the North Fork of the Red River and the State of Texas, heretofore known

as Greer County, Texas, be and the same is hereby established as Greer County, Oklahoma.

The 98th meridian, which was then part of the west boundary of Indian Territory, was marked by the Geological Survey in 1899 with iron posts set in concrete.

The Cherokee Outlet originally comprised an area of more than 12,000 square miles south of the south boundary of Kansas, west of the 96th meridian, north of an east-west line through the mouth of the Cimarron River, and east of the 100th meridian; this area was reserved for the use of Indians while traveling to visit their friends in the West. The rights of the Indians in this area were extinguished by treaty (27 Stat. L. 640), dated December 19, 1891, ratified by Congress March 3, 1893, and proclaimed by the President August 19 of the same year; the treaty became effective at 12 o'clock noon of the 16th of September. This area thereby became a part of the Territory of Oklahoma in accordance with the act of May 2, 1890, and was open to settlers. The Cherokee Outlet was not the same as the Cherokee strip. The Cherokee strip was a part of the Cherokee country about $2\frac{1}{2}$ miles wide just north of the 37th parallel, now a part of Kansas.

On June 16, 1906, an enabling act for the admission of Oklahoma as a State was passed by Congress (34 Stat. L. 267), the new State to consist of

all that part of the area of the United States now constituting the Territory of Oklahoma and the Indian Territory as at present described.

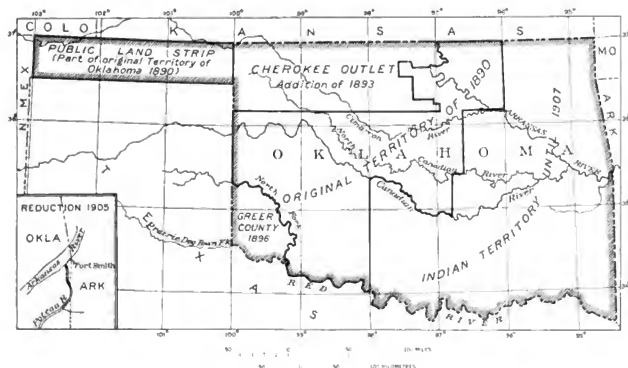


FIGURE 36.—Historical diagram of Oklahoma.

The bounds of the Indian Territory, as defined in the act of March 1, 1889, were as follows (25 Stat. L. 783):

North by the State of Kansas, east by the States of Missouri and Arkansas, south by the State of Texas, and west by the State of Texas and the Territory of New Mexico.

The people of the two Territories having adopted a constitution, the President, by proclamation dated November 16, 1907, declared the admission to statehood complete (35 Stat. L. 2160).

For descriptions of the boundaries of the State of Oklahoma as now marked, see Arkansas, page 120; Missouri, page 118; Texas, page 122; Kansas, page 139; and Colorado, below. Gittinger (1917) contains many references to boundaries as well as a history of the changes in the territory from 1803 to 1906.

A set of diagrams illustrating various stages in the change of the Oklahoma area from Indian ownership to statehood was prepared by George Pamley and printed by the Webb Publishing Co., Oklahoma City, in 1917.

COLORADO

A concerted attempt was made in 1958 to organize the "State of Jefferson," which was to include the present area of Colorado together with large areas now within the limits of Nebraska, Wyoming, and Utah; but by popular vote in 1859 it was decided to organize a Territorial government instead. A governor and a legislature were elected and held office until 1861, when the Territory of Colorado was established by act of Congress (Paxson, 1904, p. 92; Smiley, 1901, chap. 32; Campbell, 1922, p. 62-65).

Colorado was organized as a Territory on February 28, 1861 (12 Stat. L. 172), with the same boundaries as at present, being made up from parts of the Territories of Utah, New Mexico, Kansas, and Nebraska. (See figs. 27, 45, 47.) The name given to this Territory in the bill as it passed the House was Idaho; but it was changed to Colorado in the Senate.

The boundaries were described in an enabling act (13 Stat. L. 33), approved March 21, 1864, as follows:

That the said state of Colorado shall consist of all the territory included within the following boundaries, to wit: Commencing at a point formed by the intersection of the thirty-seventh degree of north latitude with the twenty-fifth degree of longitude west from Washington; extending thence due west along said thirty-seventh degree of north latitude to a point formed by its intersection with the thirty-second degree of longitude west from Washington; thence due north along said thirty-second degree of west longitude to a point formed by its intersection with the forty-first degree of north latitude; thence due east along said forty-first degree of north latitude to a point formed by its intersection with the twenty-fifth degree of longitude west from Washington; thence due south along said twenty-fifth degree of west longitude.

A constitution formed by a convention held in 1864 in accordance with this act was rejected by popular vote; a second constitution formed by another convention, in 1865, was accepted by a small majority. Congress at its next session passed an act for the admission of Colorado to statehood, but it was vetoed in May, 1866, by the President. The principal reasons given for this action were scanty population and the small majority resulting from the second vote (3,030 against 2,875). Furthermore, it was stated that the second voting was held without legal authority. Another act for the admission of Colorado was vetoed in 1867 for reasons similar to those previously given. (U.S. Cong., 1897, p. 413-416, 483, 489; Thorpe, 1909, v. 1, p. 470.)

A third enabling act (18 Stat. L., pt. 3, 474), without change in boundaries, was approved March 3, 1875. The conditions of the act having been complied with, the President by proclamation dated August 1, 1876, declared the admission complete.

For reference to the survey and marking of the east boundary, see Kansas, page 139; and for the north boundary, see Nebraska, page 138, and Wyoming, page 145.

The south boundary of Colorado was surveyed in 1858-59 from the southeast corner west to the 103d meridian, by Macomb.

The act of March 3, 1873 (17 Stat. L. 517) provided for the survey of the eastern part of the south boundary of Colorado from the southeast corner of the State to the 103d meridian and also for the survey of so much of the east boundary of New Mexico as lies between the northwest corner of Texas and the 37th parallel of north latitude. These surveys were made by John G. Major, U.S. deputy surveyor, in 1873 and 1874, and were approved by the Commissioner of the General and Office July 29, 1874. The field notes are filed in the Cartographic Records Division, National Archives and Records Service. A survey of the boundary line between Colorado and New Mexico from the 103d meridian westward was authorized by act of Congress approved March 2, 1867. This line was surveyed and marked in 1868 by E. N. Doring, U.S. surveyor, presumably on the 37th parallel of latitude; but subsequent investigations in the vicinity of Edith, Colo., showed that between the sixth and eighth astronomical monuments²¹ (there were 11 in all), gross errors in alignment and measurement existed, there being an offset or jog

²¹ For descriptions of nine of these stations, see Beall (1925, p. 154-155).

of nearly half a mile in the vicinity of the 212th mile mark.

To locate the line where original marks were missing, the State of Colorado, in 1901 (Colorado Session Laws of 1901, chap. 37), appropriated funds for the reestablishment of the Darling line between the sixth and eighth astronomical monuments. The act required that the field notes and plats be filed with the secretary of state of Colorado, to be accepted as conclusive evidence in all cases in Colorado courts in which this part of the southern boundary was in question. This work, done in 1901, by State authority alone, was not accepted or approved by Congress and was therefore not binding on New Mexico, which was then a Territory.

In 1902 Congress authorized the resurvey of the entire line between the State of Colorado and the Territories of New Mexico and Oklahoma.¹⁸ This survey was executed by H. B. Carpenter in 1902-3, but the joint resolution passed by Congress for its acceptance as the legal boundary was vetoed by the President.¹⁹ The Carpenter line differs materially from the Darling line, being considerably north of it in certain places and south of it in others. At the east end the Carpenter line is more than half a mile north of the southern boundary as surveyed in 1858. On October 13, 1919, permission was granted to the State of New Mexico by the U. S. Supreme Court to file a suit against the State of Colorado for a settlement of this boundary dispute. The opinion of the Court, dated January 26, 1925 was in favor of Colorado and a resurvey of the boundary line as marked by Darling in 1868 was ordered (267 U. S. 41). The Court held that the Darling line was the correct one because of its original acceptance by Colorado and by the Federal Government, regardless of its errors and the temporary use of the Carpenter line by the General Land Office. After the veto of the resolution for the acceptance of the Carpenter line, it was no longer used for the survey of the public lands. The decision of the Court was that the Darling line should be reestablished from what monuments could be found.

¹⁸ 32 Stat. 552. See U. S. Cong. (1905a) for a description of this and the Darling surveys.

¹⁹ The veto message appears in the Congressional Record December 19, 1908, p. 451-452. The reason given for the veto was that Colorado had not accepted the line and probably would not do so, as it would take from that State a strip of land for nearly its whole length in which there were a considerable number of settlers and live stock offices. The discussion that preceded the passage of the joint resolution by the House is given in the Congressional Record December 12, 1908.

In 1917, a part of the line had been rerun by W. C. Perkins of the General Land Office. This part was between Darling's mile-posts 202 and 241, east of his astronomic station 8. The Perkins line was monumented with iron posts, and was accepted by the court.

The Court appointed Arthur D. Kidder of the Bureau of Land Management (then the General Land Office), as commissioner to resurvey the Darling line. (A meridian telescope that he used in his work is shown in fig. 37.) He supervised the fieldwork, which was delayed in execution owing to shortage of funds, the costs being paid by the States concerned. The report was prepared by Joseph C. Thoma, who was appointed commissioner following Mr. Kidder's death in 1958. The final report was submitted in three parts on February 15, May 2, and June 1, 1960. It was approved by the Supreme Court on October 24, 1960 (364 U. S. 296).

The instructions of the Court were that the Macomb and the Preston monuments were to be controlling points in the survey. The former monument had been set in 1859 in the survey mentioned above. The latter was set by Levi S. Preston in 1900 when he retraced the Major line 2½ miles eastward to the northeast corner of New Mexico. (See Oklahoma, p. 140.)

Kidder began at the Macomb monument, which he replaced by a concrete monument with a bronze tablet. From this point (lat 37°00'00.29" N., long 103°02'49.97" W., 1927 N.A.D.) he first ran the line east to the Preston monument and then west, retracing Darling's line. He tied to all the Darling monuments he could find, setting concrete posts with bronze tablets each mile on the line between them. The iron posts set by Perkins were taken up, set in concrete, and replaced in their original position. He destroyed all the Carpenter monuments he found, except those known to have been used as points of reference for local surveys. Such monuments were preserved, and only marks identifying them as boundary markers were removed.

The closure at the west end of the line was on the point established by Robbins in 1875. (See New Mexico, p. 163.) This mark is deserving of more than passing notice, as it is the only one in the United States that is the common corner of four States. A new stone was set by Page and Lutz in 1899, replacing the original, which they had found damaged. In 1931, Everett H. Kimmell, surveyor of the General Land Office, replaced the stone with a concrete monument now there. Its geodetic position is lat 36°59'56.30" N., long 103°02'40.24" W. (1927 N.A.D.).

Because of the unique character of this boundary marker, the Department of the Interior placed an ornamental concrete slab around the monument in 1962. It is 28 feet square and is oriented with the cardinal directions. The names Arizona, Utah, Colorado, and New

Mexico with the seal of each State appear in the proper quadrants. (See fig. 38.)

This position was used as a starting point in 1879 for the survey of the west boundary of Colorado. The survey runs north to the Wyoming line, a measured distance of 276 miles 51.66 chains. It was expected that this line would intersect the south boundary of Wyoming about 30 chains west of the 261st mile mark, but the line as run was nearly 1 mile farther west (262 miles 28.58 chains). A sandstone block 30 by 20 by 6 inches was set 18 inches in the ground at this point and marked "WYO" on the northeast, "COL 32° W L" on the southeast, and "UTAH 41, N L" on the southwest face.

The explorations of John Wesley Powell, Director of the U.S. Geological Survey from 1881-94, added to the knowledge of the topography crossed by boundary surveys of Colorado, Utah, and Wyoming (figs. 39, 40).

The Colorado-Utah line was retraced in 1885 and remarked with stone or cedar posts from the south end as far north as milepost 209. Between mileposts 81 and



FIGURE 37.—Meridian Telescope used by Arthur D. Kidder, astronomer and surveyor of the General Land Office in 1902-03, for determination of longitude of boundaries of New Mexico, Oklahoma, and Texas by astronomical observations.

89 the line was found to diverge toward the west $7^{\circ}10'$, an error which at least in part accounts for the failure to close as expected on the Wyoming line. The initial mark of this line was thus described in 1885: A stone 7 feet by 12 by 6 inches set 3 feet in the ground, and marked on the northeast face "COLO 37° N L," on the southeast "N NEX 32° W L," on the southwest "ARIZONA," and on the northwest "UTAH 1875."

Between the 100th and 110th miles the positions of two boundary marks were determined by the Coast and Geodetic Survey in 1893 (Bowie, 1914, p. 100), one in lat $38^{\circ}27'46.16''$ N., long $109^{\circ}03'33.52''$ W., and the

other in lat $38^{\circ}33'56.41''$ N., long $109^{\circ}03'33.66''$ W. (1927 N.A.D.). These longitudes show that the line in this locality is nearly half a mile west of its statute position.

WYOMING

Wyoming was organized as a Territory on July 25, 1868, from an area previously included in the Territories of Dakota, Idaho, and Utah. Its limits, which are the same as originally established, are defined in the following clause from the act creating it (15 Stat. L. 178):

That all that part of the United States described as follows: Commencing at the intersection of the twenty-seventh meridian of longitude west from Washington with the forty-fifth degree of north latitude, and running thence west to the thirty-fourth meridian of west longitude, thence south to the forty-first degree of north latitude, thence east to the twenty-seventh meridian of west longitude, and thence north to the place of beginning, be, and the same is hereby, organized into a temporary government by the name of the Territory of Wyoming.



FIGURE 38.—Junction of four States: Arizona, Utah, Colorado, and New Mexico.

Wyoming was admitted as a State by act of July 10, 1890, with boundaries as above described (see fig. 34, 26 Stat. L. 222), but it was

Provided, That nothing in this act contained shall repeal or effect any act of Congress relating to the Yellowstone National Park, or the reservation of the park as now defined, or as may be hereafter defined or extended or the power of the United States over it: " * *

Wyoming has the right to serve criminal or civil writs in its portion of the park, but otherwise the United States has exclusive jurisdiction and control over it (26 Stat. L. 73). The original boundaries of the park were given in the act establishing it, dated March 1, 1872 (17 Stat. L. 32). Extensions were made by act approved March 1, 1929.

The north boundary of Wyoming was surveyed in 1879-80 under the General Land Office. Beginning at a post set in 1874 for the northwest corner of the State, the line was run eastward, checked by a number of observations for latitude, for a distance reported as 347 miles 43 chains. The marks were nearly all wooden posts in small mounds of earth. The eastern terminus of this line was on the meridian of 27° west of Washington as marked in 1877. The mark left at this corner was replaced in 1904 by a 6-foot stone post, the geographic position of which is lat 44°59'51.45" N., long 104°03'25.77" W., 1927 N.A.D. (Bowie, 1914, p. 93.)

The survey of the south boundary of Wyoming was made under the direction of the General Land Office in 1873. Beginning at a mark established in 1869 for the intersection of the 41st parallel and the 27th meridian west of Washington, the line was run westward, checked by six astronomic determinations of latitudes, to the computed location for the 34th meridian west of Washington. To find the proper position for this meridian, an astronomic station was established at Evanston, Wyo., the longitude of which was found to be 33°55'20.69" west of Washington. From this point a line was run due south to a mark on the boundary and thence west 4 miles 4.54 chains, to a point where an 8-foot sandstone post, appropriately marked, was set 3 feet in the ground and surrounded by a pile of rocks. The measured length of the south boundary of Wyoming was found to be 367 miles 48.81 chains.

Geographic positions on this boundary have been determined as follows: Boundary mark 44, a sandstone post projecting 4 feet above ground stands about 11 miles west of south from Cheyenne in lat 40°59'53.71" N. and long 104°53'33.58" W (1927 N.A.D.). This is said to be the only permanent boundary mark for several miles in either direction. Milepost 239 has been tied in to the triangulation of the U.S. Coast and Geodetic Survey. Its position is lat 41°00'00.23" N. and long 108°36'16.98" W. The position of the stone that marks the southwest corner of Wyoming is lat 40°59'52.52" N., long 111°02'45.90" W. (Wilson and others, 1901, p. 202.)

A considerable part of the south boundary of Wyoming has been retraced by the General Land Office in connection with the surveys of public lands.

The west boundary of Wyoming was surveyed and marked in 1874. Beginning at the mark of 1873 at the southwest corner of the State, the line runs due north for a measured distance of 277 miles 72.66 chains to a point where a 30-inch pine post 10 feet long was set 3 feet in the ground and surrounded by a mound of earth and stone. The position for the intersection with the south boundary of Idaho as marked in 1871 was 41.38 chains north of the 69-mile point and 55.70 chains west of the mark previously established for the initial point of the Utah-Idaho boundary survey.

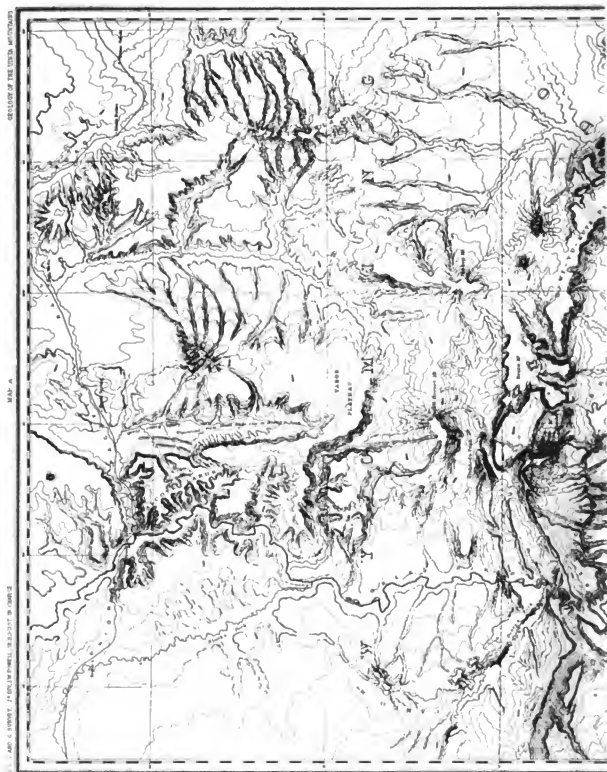
MONTANA

The Territory of Montana was organized by act of May 26, 1864, from a portion of Idaho. Its limits (figs. 34, 43), which have been changed but slightly, are given as follows in the organizing act (13 Stat. L. 86):

That all that part of the territory of the United States included within the limits, to wit: Commencing at a point formed by the intersection of the twenty-seventh degree of longitude west from Washington with the forty-fifth degree of north latitude; thence due west on said forty-fifth degree of latitude to a point formed by its intersection with the thirty-fourth degree of longitude west from Washington; thence due south along said thirty-fourth degree of longitude to its intersection with the forty-fourth degree and thirty minutes of north latitude; thence due west along said forty-fourth degree and thirty minutes of north latitude to a point formed by its intersection with the crest of the Rocky Mountains; thence following the crest of the Rocky Mountains northward till its intersection with the Bitter Root Mountains; thence northward along the crest of said Bitter Root Mountains to its intersection with the thirty-ninth degree of longitude west from Washington; thence along said thirty-ninth degree of longitude northward to the boundary line of the British possessions; thence eastward along said boundary line to the twenty-seventh degree of longitude west from Washington; thence southward along said twenty-seventh degree of longitude to the place of beginning; be, and the same is hereby, created into a temporary government by the name of the Territory of Montana.

Figure 41 shows the vista along part of the boundary between the United States and Canada along the 49th parallel near Gateway, Montana.

This act took from Idaho an area bounded in part on the south by the 45th parallel and on the west by the Bitterroot Mountains. The creation of Wyoming Territory in 1868 took from Dakota Territory the greater part of the area that had been restored to it by the Montana act, which extended west to the Continental



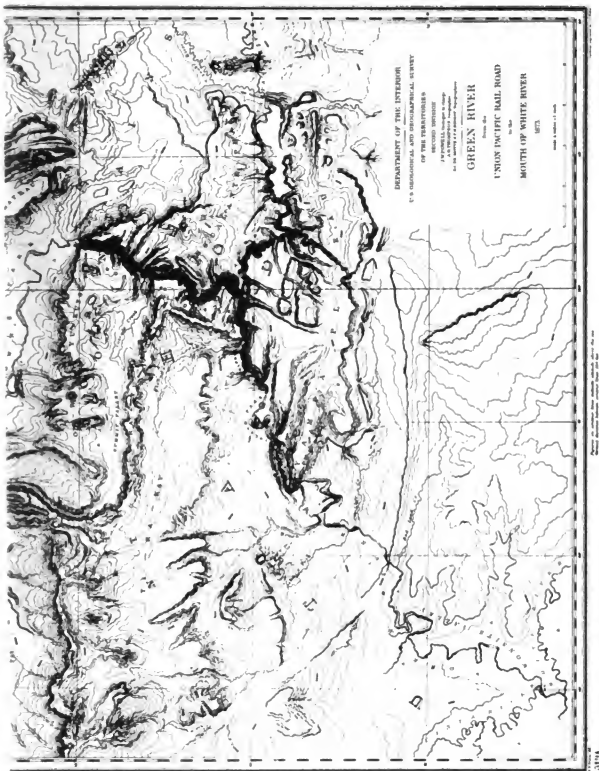


FIGURE 39.—Map showing the topography of an area now a part of Colorado, Utah, and Wyoming. Surveyed and published by the Department of the Interior in 1873, under the direction of John Wesley Powell. The original is now in the Library of Congress.

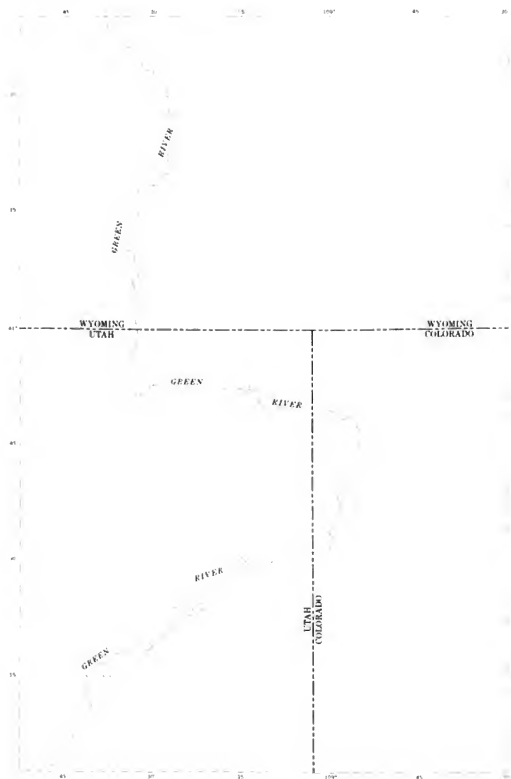


FIGURE 40.—Boundaries of Wyoming, Utah, and Colorado as surveyed.



FIGURE 41.—Boundary between the United States and Canada along the 49th parallel near Gateway, Montana. The vista is cleared to a distance of 10 feet on either side of the line and recleared as necessary. Photo by International Boundary Commission.

Divide and north to the point where the divide intersected the parallel of $44^{\circ}30'$, but left a triangular area of about $1\frac{1}{2}$ square miles west of long 34° W., south of lat $44^{\circ}30'$ N., and east of the Continental Divide that still belonged to Dakota. This area was given to Montana by the act of 1873, which described it as follows (see fig. 23; 17 Stat. L. 464):

That all that portion of Dakota Territory lying west of the one hundred and eleventh meridian of longitude which, by an erroneous definition of the boundaries of said Territory by a former act of Congress, remains detached and distant from Dakota proper some two hundred miles, be, and the same is hereby, attached to the adjoining Territory of Montana.

The act should have described the area as being west of the 34th meridian west of Washington instead of west of the 111th meridian, for the Greenwich meridian was not mentioned in the former act.

The enabling act (25 Stat. L. 676), which included also provisions for the admission of North Dakota, South Dakota, and Washington, fixed their boundaries "as at present described."

The presidential proclamation announcing the admission of Montana as a State was dated November 8, 1889.

The south boundary of Montana was surveyed and marked in 1879-80, under the General Land Office.

The land included in Yellowstone National Park was set aside previous to the admission of the State of Montana. The north boundary of the park lies about two miles within the State, as does a part of its west boundary. This overlap causes an unusual situation as the area is not included in any county. The census of 1970 gives the number of inhabitants as 64. The area is 269 square miles. The legal status is described by the term "Exclusive Legislative Jurisdiction" in which the Federal government has received all the authority of the State except the right to serve process resulting from activities which occurred off the land involved.

See Idaho, page 157, and Wyoming, page 145.

That part of the west boundary between the crest of the Bitterroot Mountains and the Canadian border was surveyed and marked in 1898-99 by the U.S. Geological Survey. (For a detailed report of this work, see Goode, 1900.)

In the attempt to place the boundary on the 39th meridian west of Washington, the surveyor used an astronomic datum, with the Initial point at Spokane.

He measured a five-mile base line along a tangent of the Northern Pacific Railroad east of the city and then triangulated across the panhandle of Idaho. The position of boundary post 12 of this line has been determined by the U.S. Coast and Geodetic Survey to be lat $48^{\circ}52'33.48''$ N., long $116^{\circ}02'52.99''$ W., 1927 N.A.D. This position is some 600 feet east of the 39th meridian. (Goode, 1900.)

The remainder of the western boundary was surveyed and marked by stone or 3-inch round iron posts in 1904-6 under the General Land Office. The total measured length of the Idaho-Montana boundary line from the Canadian border to the Wyoming line is about 738 miles, of which the first 70.7 miles is the meridional line, the next 355 miles is along the crest of the Bitterroot Mountains, and the remaining 312 miles along the Continental Divide. The west boundary of the Yellowstone National Park crosses this line about $2\frac{1}{2}$ miles west of the Wyoming line.

For reference to the survey of the northern boundary, see page 21.

The survey of the east boundary of Montana on the 27th meridian west of Washington was undertaken in 1885; the initial position had been found by measurement from an astronomic station on the Northern Pacific Railway 6 miles 28.51 chains to the west, where an exchange of time signals had been made by telegraph. From the point thus found a random line was run south to the 45th parallel. The mark at the northeast corner of Wyoming on this parallel, as established in 1880, was reported to be 70.68 chains west of the 27th meridian as fixed by the random line. A point for the intersection of the 45th parallel and the 27th meridian (the southeast corner of Montana) was marked by a stone post. Both these corner marks were replaced in 1904 by 6-foot cut-stone posts. See page 145 for the geographic position of the Wyoming corner.

From the point marked as the southeast corner of Montana, the line was run north to the 49th-parallel boundary, a measured distance of 276 miles 27.80 chains. The Northern Pacific Railway was crossed at 133 miles 63 chains; the Yellowstone River, between mileposts 195 and 196; and the Missouri River, between mileposts 207 and 208. Most of the marks on this line were wooden posts, many of which have since been destroyed. The part from the 193d to the 218th milepost was retraced in 1901, and the posts were found to be poorly aligned, varying as much as 50 minutes to the east or west for a single mile.

The geographic position of the southeast corner of Montana is lat $44^{\circ}59'53.19''$ N. and long $104^{\circ}02'20.83''$ W. Farther north (at lat $47^{\circ}12'41.45''$ N.) there is an accurately located boundary mark, the longitude of which is $104^{\circ}02'39.88''$ W. This mark is an old oak post. (Bowie, 1914, p. 93. 94.) The longitude of the in-

tersection of the east boundary line with the northern boundary of the United States is 104°02'48.13" W. These values are for 1927 N.A.D.

CALIFORNIA

The act of September 9, 1850 (9 Stat. L. 452), admitting California into the Union reads in part as follows:

Whereas the people of California have presented a constitution and asked admission into the Union . . . Be it enacted . . . that the State of California shall be one and is hereby declared to be one of the United States of America and admitted into the Union on an equal footing with the original states in all respects whatever.

The constitution of California describes the boundaries of the State as follows (Thorpe, 1909, v. 1, p. 405):⁶⁰

Commencing at the point of intersection of forty-second degree of north latitude with the one hundred and twentieth degree of longitude west from Greenwich, and running south on the line of said one hundred and twentieth degree of west longitude until it intersects the thirty-ninth degree of north latitude; thence running in a straight line in a southeasterly direction to the river Colorado, at a point where it intersects the thirty-fifth degree of north latitude; thence down the middle of the channel of said river to the boundary line between the United States and Mexico as established by the treaty of May 30, 1848; thence running west and along said boundary line to the Pacific Ocean, and extending therein three English miles; running in a northwesterly direction and following the direction of the Pacific coast to the forty-second degree of north latitude; thence on the line of said forty-second degree of north latitude to the place of beginning. Also all the islands, harbors, and bays along and adjacent to the Pacific coast.

California is part of the territory acquired from Mexico by the treaty of Guadalupe-Hidalgo, between the United States and Mexico, proclaimed July 4, 1848. From that date until December 20, 1849, when the State constitution was adopted and a governor elected, the future State was governed by the commanding officer of the U.S. military forces, Brigadier General Riley. Thus California never had the status of an organized territory, but was admitted directly into the Union.

To determine the proper position for the northeast corner of California (lat 42° N., long 120° W.), an astronomic station was established at Camp Bidwell, where more than 3,000 measurements of lunar distances were said to have been made for longitude in 1868-69. The position for the corner was computed to be 9 miles 56 chains north and 4 miles 78 chains east from the observatory. From the corner thus found, the line was run west a distance of 212 miles 28 chains to a terminal mark 12 chains from the shore of the Pacific Ocean. The 1927 N.A.D. position of this post is lat 41°59'54.65" N., long 124°12'28.31" W. The mile marks along the line consisted of wooden posts or small stones having "C" cut on the north side, "C" on the south, and the mile number and date on the other sides. This survey was made by D. G. Major, U.S. deputy surveyor

and astronomer. The field notes are among the records of the General Land Office and are filed in the U.S. National Archives.

The 120th meridian boundary between California and Nevada north of Lake Tahoe was first surveyed in 1860-63 and a second line was run in 1868. However, the official survey, which still governs, was made by W. A. Von Schmidt, U.S. deputy surveyor, in 1873. Von Schmidt went to Verdi to a station on the Central Pacific Railroad (now part of the Southern Pacific Lines) and established telegraphic communication with San Francisco, where there was an astronomic station. After determining his longitude by difference in time, he measured over to the 120th meridian and started north along it from Crystal Peak. When he reached Smokey Creek, he received instructions that his line must run south from the point established by Major in 1869 as the northeast corner of California, the mileposts to be numbered from that point. He therefore left his line and began a new one running south from Major's monument. Reaching a point opposite the northend of his earlier line, he measured east and found the distance between the two lines to be 3 miles and 24.51 chains. Because he felt certain that his longitude determination on the railroad was much closer than that of the initial point on the Oregon border, he was inclined to accept the former, but hesitated to disregard his orders to begin at the corner set in 1869. In his report, he stated that after considering the fact that it was the intent of Congress that the boundary should be 120° west of Greenwich, he decided to set a new initial point on the 42d parallel.

Von Schmidt computed the convergence of the meridians for the difference in latitude and subtracted this value from the east-west distance between his two lines. He then surveyed east from Major's monument 3 miles 18.73 chains to a point for the northeast corner of California where he set a post 8 feet long and 8 inches square in a mound of stone. A triangulation station of the U.S. Coast and Geodetic Survey (Nev.-Calif.-Ore. Ecc.) is 117 feet southwest of the post marking the corner. The coordinates of this station are lat 41°59'41.36" N., long 119°59'55.60" W. (1927 N.A.D.). The field notes and the report on this survey are in the U.S. National Archives.

From this point Von Schmidt ran the line south, setting mileposts on the boundary. He made a satisfactory closure in the east-west direction with his line

⁶⁰For a brief review of the events that resulted in the adoption of the boundaries of California as at present fixed, and of attempts to change them, see Guinn (1905).

north from the railroad and continued to the north shore of Lake Tahoe.

The gap of more than 3 miles between the monuments of Major and Von Schmidt was not monumented. When the fractional township at the northeast corner of the State was surveyed in 1879, the north-south section lines were closed against the line between the two monuments. These closing corners serve to mark the State boundary.

The oblique boundary line between California and Nevada, from its northern terminus in Lake Tahoe to its southern terminus on the Colorado River at lat 35° N. was originally surveyed under authority of an act of Congress of 1860. Several surveyors took part in the work of surveying this line, among them Lt. Joseph C. Ives, who made astronomic observations for position at the Colorado River end of the line and on the south shore of Lake Tahoe. For determination of longitude at the Lake Tahoe site, he had the use of a telegraph line to San Francisco.

The first complete running of this boundary was by Von Schmidt in 1873. His mileposts were numbered in continuation of the line from the Oregon border, number 211 being near the southeast corner of the lake. He ran a random line, computing an azimuth to close on the position established by Lieutenant Ives. His closure on this point was 20 chains. He found that the river had changed its bed by a distance of a mile and a half. In reply to his request for instructions from the General Land Office, Von Schmidt was told he should make his own decision as to the intersection of the middle of the channel of the Colorado and the 35th parallel as he saw it at that time, inasmuch as the Ives survey had never been accepted.

Work on a resurvey of this boundary was initiated by the U.S. Coast and Geodetic Survey in 1893 and completed in 1899. No fieldwork was done in 1896 and 1897. In the annual report of this agency for 1900 (Sincclair, 1901), it is stated that corrections to his random line were distributed by Von Schmidt only along the south one-third of his line. New determinations of latitude and longitude were made for the terminal points on the line. The position of the river channel at the 35th parallel was chosen as a point midway between the cut banks between which the river meandered.

The random line for the new survey was put in by triangulation, beginning at the Lake Tahoe end. The final boundary marks were offset from this line, by

whatever amount the adjustment required. Most of the marks were wooden posts surrounded by a rock cairn 3 to 5 feet high. In a total distance of 405 miles, 137 monuments were set. These monuments, scribed with the letters "C" and "N" on the appropriate sides and the number on the northwest, mark the accepted boundary. Fifty marks of the 1873 survey were recovered. The line surveyed in 1873 crosses the Coast and Geodetic Survey line twice and at one place is over a mile northeast of it.

The principal islands claimed as part of the State of California are:

Santa Catalina and San Clemente, 20 to 50 miles off the coast, included in Los Angeles County.

San Nicolas, 60 miles from the coast, included in Ventura County.

Santa Cruz, Santa Rosa, and San Miguel, 20 to 25 miles from the coast, included in Santa Barbara County.

These and many smaller islands passed under the control of the United States in consequence of the treaty of Guadalupe-Hidalgo. The question of sovereignty over these islands has been raised several times, the claim being made that as they were not mentioned in the treaty of 1848, Mexico had not given up its title to them; but it is evident from the following references that it was generally understood after the treaty was signed that the islands were a part of the territory ceded to the United States.

A general assertion of jurisdiction of the "islands adjacent to the Pacific coast" was made in the State constitution of 1849, which was formally approved by Congress in 1850.

In an act of Congress approved August 31, 1852 (10 Stat. L. 91), an appropriation was made for subdividing these islands, several of which were mentioned by name, "so that said islands may be readily disposed of under the laws of the United States."

The U.S. Supreme Court at its December term, 1859, decided a case relating to a land grant on the island of Santa Cruz (23 Howard 465), in which the claim was based on a Mexican grant of 1839. The question of jurisdiction of the United States over the island was not brought up, although it must have been considered.

Patents have been issued from time to time by the General Land Office for land on the several islands, and reservations have been made on behalf of the United States for lighthouses.

So far as can be ascertained, no formal adverse claim to these islands has ever been presented by Mexico, and in view of the foregoing facts it is certain that none can now be made with a hope for favorable consideration. (U.S. Dept. of the Interior, 1895, p. 106.)

The south boundary of California from the Colorado River to the Pacific Ocean is also the international

boundary between the United States and Mexico. For description of the survey of this line by the joint international commission in 1849, see page 28.

Owing to the continual shifting of the bed of the Colorado River, the States of California and Arizona executed a compact on March 12, 1863, to fix their common boundary. The compact specified that a joint commission would define the boundary in such a manner that further movement of the river would not affect it. Near the south end of this boundary, the bed of the river has not been confined by the topography as it was farther north. Because determination of the position of the midchannel at the time California entered the Union would be difficult now, it was decided to place the boundary line in a position that would provide an equitable distribution of the land that had been affected by the movement of the riverbed. (See fig. 42.)

The compact called for the determination of the positions of 34 points by precise geodetic methods. The first of these points is at the center of the river where the California-Nevada boundary intersects it. The 34th point is at the international boundary with Mexico. Twelve of these stations are on structures over the river. Some 200 additional stations are identified on aerial photographs taken for the purpose, and their coordinates measured and computed by precise analytical photogrammetry.

Where successive points fall in the middle of the channel of the river, the boundary follows the stream rather than being a straight line between them, the aerial photographs being retained as evidence of the position. The controlling points are considered sufficiently close together and the river stabilized to the extent that no problems would arise. Congress approved the new boundary on August 11, 1966 (80 Stat. 340).

The revised boundary is described in detail with drawings, geodetic positions, and descriptions of angle points in Technical Bulletin No. 27 of the U.S. Coast and Geodetic Survey (Simmons, 1965).

The extension of the international boundary into the Pacific by treaty in 1972 (see page 46, territorial waters) provides that the boundary shall begin at the westernmost point of the mainland boundary. (See p. 28, survey of the Mexican-California boundary.) It extends seaward to a point that is the intersection of two arcs of 12 nautical miles radius, struck from Point Loma in U.S. territory and the Coronado Islands in Mexico. The series of straight lines connecting the seaward extremity and the terminal point on shore are arcs of great circles. The straight lines represent a practical simplification of a line drawn in accordance with the principle of equidistance established by the Geneva Convention. The positions of the points where these straight lines intersect are shown on the chart annexed to the treaty document (TIAS 7313).

OREGON

The Oregon region in early days was a source of many disputes (Mowry, 1902, chap. 7) between the United States and Great Britain, nearly to the point of war. It was claimed by the United States at different times as a part of the Louisiana Purchase, by right of discovery, and as a part of the Spanish cession.⁴¹ In the convention of 1818 with Great Britain, joint occupancy for 10 years was provided. This status continued until 1846, when Congress by resolution authorized the President to give notice of its discontinuance. The United States at that time claimed the area as far north as lat 54°40' N., but by the treaty with Great Britain of 1846 (see p. 18) the disputes regarding title were forever settled and the 49th parallel was made the northern boundary.

The Territory of Oregon was organized August 14, 1848, with boundaries described as follows (see fig. 43, 9 Stat. L. 323):

... all that part of the Territory of the United States which lies west of the summit of the Rocky Mountains, north of the forty-second degree of north latitude, known as the Territory of Oregon, shall be organized into and constitute a temporary government by the name of the Territory of Oregon.

In 1853 the Territory was reduced by the formation of Washington Territory, and on February 14, 1859 (11 Stat. L. 383), it was admitted as a State with its present limits. The boundaries were described in the State constitution of 1857 as follows (Thorpe, 1909, v. 5, p. 3015):

Beginning one marine league at sea due west from the point where the forty-second parallel of north latitude intersects the same; thence northerly, at the same distance from the line of the coast lying west and opposite the State, including all islands within the jurisdiction of the United States, to a point due west and opposite the middle of the north ship channel of the Columbia River; thence easterly to and up the middle channel of said river, and where it is divided by islands, up the middle of the widest channel thereof, and in like manner up the middle of the main channel of Snake River to the mouth of the Owyhee River; thence due south to the parallel of latitude forty-two degrees north; thence west along said parallel to the place of beginning, including jurisdiction in civil and criminal cases upon the Columbia River and Snake River concurrently with States and Territories of which those rivers form a boundary in common with this State. But the Congress of the United States, in providing for the admission of this State into the Union, may make the said northern boundary conform to the act creating the Territory of Washington.

⁴¹ For a brief outline of the principles governing acquisition of territory by discovery and occupation, see Queensland Gear, four, Brisbane, Australia, 1923, v. 38, p. 61. This article contains a reference to the Oregon dispute. See also Schaler (1911, p. 273-299) and Moore (1898, v. 1, chap. 7 and 8).

The U.S. act of February 14, 1859, concluded the description as follows (11 Stat. 383):

"... to a point near Fort Walla-Walla, where the forty-sixth parallel of north latitude crosses said river; thence east on said parallel to the middle of the main channel of the Shoshonies or Snake River; thence up the middle of main channel of said river, to the mouth of the Owyhee River; thence due south, to the parallel of latitude forty-two degrees north; thence west, along said parallel, to the place of beginning.

The Oregon-Washington boundary on the 46th parallel, between the Snake and Columbia Rivers, was surveyed and marked in 1863-64 under the direction of the General Land Office. The latitude used was derived from more than 500 observations with the sextant. Two observation stations were occupied, one near the foot of Cathedral Rock on the Columbia, the other near Cottonwood Creek on the west side of the Blue Mountains. A random line was run between them, which showed an apparent difference of latitude of 4". The final line was run on the mean latitude. Marks were set at mile intervals for 42 miles east from the Columbia, then at irregular intervals over the Blue Mountains. The measured length of the line was 96 miles 57 chains. The easternmost mark, which was placed 3 chains from the west bank of the Snake River, was a 7½-foot post 12 inches in diameter, marked "W" on the north, "O" on the south, and "46 L 1868" on the east side; it was set in a 6-foot pile of stones.

By a joint resolution approved June 10, 1910, Congress gave its consent to Oregon and Washington to fix their common boundary in the Columbia River and to cede, the one to the other, islands the title to which had been in dispute. Owing to the continual shifting of the main channel of the Columbia River, it was decided to define the boundary by a series of tangents, the ends of which were recorded geodetic positions. A compact was made by the States of Oregon and Washington, and Congress approved the new boundary on July 31, 1938 (72 Stat. 455). These straight lines connect 191 points between the mouth of the Columbia and the point where the boundary leaves the river and continues eastward along the 46th parallel. These lines approximate the channel of the river, and a point is established on the centerlines of bridges and dams crossing the river. Point number one, at the mouth of the Columbia River, is lat. 46°15'00" N., long. 124°05'00" W. (1927 N.A.D.) The seaward end of the boundary is 1 marine league due west of this point (at the same latitude).

The meridian boundary between Idaho and Oregon from the middle of the main channel of the Snake River at the mouth of the Owyhee southward to the calculated position of the 42d parallel, was surveyed and marked in 1868 under the direction of the General Land Office. The latitude of the north end of this line

was determined from more than 300 sextant observations as 43°48'41.1" N. The position for the south end was also determined from sextant observations. The measured length of the line was 124 miles 17.2 chains. The marks consisted of wooden posts, small stones, or mounds of stone. The U.S. Coast and Geodetic Survey in 1915 located a point on this line near its north end, the position of which is lat 43°43'21.34" N., long 117°01'32.70" W. (1927 N.A.D.). For discussion of the south boundary, see California, p. 151, and Nevada, p. 158.

WASHINGTON

The Territory of Washington was organized March 2, 1853, from a part of Oregon Territory. (See fig. 43.) Its original limits were defined in the following clause from the act of Congress creating it (10 Stat. L. 172):

That from and after the passage of this act all that portion of Oregon Territory lying and being south of the forty-ninth degree of north latitude, and north of the middle of the main channel of the Columbia River from its mouth to where the forty-sixth degree of north latitude crosses said river, near Fort Walla Walla, thence with said forty-sixth degree of latitude to the summit of the Rocky Mountains, be organized into and constitute a temporary government by the name of the Territory of Washington.

In 1859, on the formation of the State of Oregon, the residue of the Territory of Oregon, the part extending from the east boundary of the State to the crest of the Rocky Mountains, was added to Washington. This area, together with the part of Washington lying east of its present limits, was included in Idaho on the formation of that Territory in 1863.

The present boundaries of the State of Washington are as follows: Beginning at a point 1 marine league due west of a point at the mouth of the Columbia River, the boundaries follow a series of tangents which approximate the main channel of the river to its point of intersection with the 46th parallel of latitude (see Oregon, above); thence east on the 46th parallel to the Snake River; thence down the main channel of the Snake River to the mouth of the Clearwater; thence north on the meridian which passes through the mouth of the Clearwater to the boundary line between the United States and the British possessions; thence west with that boundary line to the Pacific.⁴²

Washington was declared admitted as a State by proclamation dated November 11, 1889, with its limits defined as above (25 Stat. L. 676). The enabling act

⁴² See articles relating to the northern boundary in Elliott (1919, b).

was dated February 22, 1889.

See page 20 for reference to the survey of the northern boundary, below for survey of the eastern boundary, and page 155 for the survey of the boundary on the 46th parallel.

IDAHO

The Territory of Idaho was formed March 3, 1863, from parts of Washington, Dakota, and Nebraska. (See figs. 34, 35, 43, 44.) Its original limits, which included the present States of Idaho and Montana and all but the southwestern part of Wyoming, were given as follows in the act organizing the Territory.⁶³

That all that part of the territory of the United States included within the following limits, to wit: beginning at a point in the middle channel of the Snake River where the northern boundary of Oregon intersects the same; then follow down said channel of Snake River to a point opposite the mouth of the Kootenoksa, or Clearwater River; thence due north to the forty-ninth parallel of latitude; thence east along said parallel to the twenty-seventh degree of longitude west of Washington; thence south along said degree of longitude to the northern boundary of Colorado Territory; thence

west along said boundary to the thirty-third degree of longitude west of Washington; thence north along said degree to the forty-second parallel of latitude; thence west along said parallel to the eastern boundary of the State of Oregon; thence north along said boundary to the place of beginning.

In 1864 the Territory of Montana was formed from a part of this area. (See p. 145.) From another part, together with a part transferred to Dakota by the act of 1864, the Territory of Wyoming was formed in 1868. These changes reduced the limits of Idaho to those described as follows in the act of admission to statehood, approved July 3, 1890 (26 Stat. L. 215):

Beginning at the intersection of the thirty-ninth meridian with the boundary line between the United States and the British Possessions, then following said meridian south until it reaches the summit of the Bitter Root Mountains; thence southeastward along the crest of the Bitter Root range and the continental divide until it intersects the meridian of thirty-four degrees of longitude; thence southward on this meridian to the forty-second parallel of latitude; thence west on this parallel of latitude to its intersection with a meridian drawn through the mouth of the Owyhee River; north on this meridian to the mouth of the Owyhee River; thence down the mid-channel of the Snake River to the mouth of the Clearwater River; and thence north on the meridian which passes through the mouth of the Clearwater to the boundary line between the United States and the British Possessions, and east on said boundary line to the place of beginning.

The west boundary of Idaho from the mouth of the Clearwater to the 49th parallel was surveyed and marked in 1873 by Rollin J. Reeves under contract with the General Land Office. Mr. Reeves was very conscientious in his efforts to comply with the description set forth in the territorial act placing the boundary

⁶³ 12 Stat. L. 808. For historical sketch of the formation of the Territory of Idaho see Washington University Historical Society (1930).

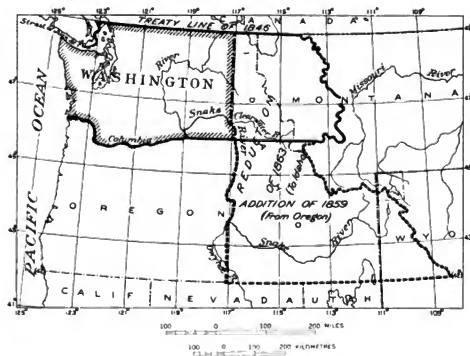


FIGURE 43.—Historical diagram of Washington.

on a meridian passing through the mouth of the Clearwater. This definition involved locating the point common to the centerlines of the main channel of both the Snake and the Clearwater. Several expedients were tried to locate this point, one being a floating keg tied by a rope to a stake at the point of land between the two rivers. The strong currents pulled the keg under. Finally, he was forced to select an approximate position. Three Government officials happened to be in Lewiston at the time, and the surveyor asked them to confirm his judgment, which they did.

Mr. Reeves was forced to stop work due to winter weather and lack of food supplies. He was only 1 mile short of reaching the Canadian boundary. This line was retraced by S. S. Gannett and C. L. Nelson of the U.S. Geological Survey in 1908.⁴⁴ It was extended to the 49th parallel and tied to international boundary monument 195. The line was marked by 177 stone or iron posts. Boundary monument 12 is at lat 46°35'57.06" N., long 117°02'19.47" W. (1927 N.A.D.).

The east meridian boundary, from the 42d parallel northward or a measured distance of 245 miles 56½ chains, was surveyed in 1874 under the direction of the General Land Office, and a mark was set on the assumed crest of the Rocky Mountains (the Continental Divide) for the corner common to Idaho, Montana, and Wyoming. From this mark along the crest of the mountains to the intersection with the 39th Washington meridian, the survey was made in 1904-6 by the General

Land Office. The surveyor who ran the line in 1906 found the tri-State mark about 6 miles too far north. He therefore replaced it with a new mark in the corrected position.

The 39th-meridian boundary (116°03'02.3" west of Greenwich) was mentioned on page 150. Ninety-two metal or stone marks were placed along a measured distance of 70.7 miles.

For reference to the northern boundary, see page 21, and for the southern boundary, see pages 158-160.

Yellowstone National Park is mainly in the State of Wyoming, but its western boundary lies in the States of Idaho and Montana, being 21½ miles west of the Wyoming border. This land is under "Executive Legislative Jurisdiction" of the Federal Government. The term applies to situations wherein the Federal Government has received all the authority of the State except the right to serve process resulting from activities that occurred off the land involved.

In 1931, Congress granted its consent for the States of Idaho and Wyoming to adjust their common boundary (46 Stat. 1039). A commission was appointed consisting of an engineer from the Department of the In-

⁴⁴ See Marshall (1911) for descriptions of these surveys and a final report and plat of the line as retraced.



FIGURE 44.—Historical diagram of Idaho.

terior and one commissioner to represent each State. The commission held three hearings in the local communities in the area crossed by the boundary, to learn the desires of local residents.

Owing to the mountainous character of the region, there had been some agitation to adjust the boundary line so as to place each of two valleys entirely in one State or the other. At the hearings, the great majority of those present disapproved of any change. The commission so reported to Congress, and the matter was dropped (U.S. Cong., 1933, 2d Sess., S. Doc. 212). For the meridian boundary between Idaho and Oregon, see Oregon, p. 155.

Interesting reading on the early history of Idaho and its creation as a territory is found in "The Idaho Heritage," a collection of historical essays edited by Richard W. Etulain and Bert W. Marley. (Idaho State University Press, 1974.)

NEVADA

The Territory of Nevada, as organized by act of March 2, 1861, consisted of territory taken from Utah. (See fig. 45.) The following are the boundaries as described in the act (12 Stat. L. 209):

* * * beginning at the point of intersection of the forty-second degree of north latitude with the thirty-ninth degree of longitude west from Washington; thence running south on the line of said thirty-ninth degree of west longitude, until it intersects the northern boundary line of the Territory of New Mexico; thence due west to the dividing ridge separating the waters of Carson Valley from those that flow into the Pacific; thence on said ridge northwardly to the forty-first degree of north latitude; thence due north to the southern boundary of the State of Oregon; thence due east to the place of beginning.

The limits thus described included a small area to be taken from the State of California. It was therefore

Provided, That so much of the Territory within the present limits of the State of California shall not be included within this Territory until the State of California shall assent to the same.

California having failed to cede the territory west of the 120th meridian,⁶⁵ Congress by act of July 14, 1862 (12 Stat. L. 575), added to Nevada a strip of land more than 50 miles wide, west of the 38th meridian from Washington and extending from the north line of New Mexico to the 42d parallel of latitude. The boundaries as described in the enabling act of March 21, 1864 (13 Stat. L. 30), were as follows:

That the said state of Nevada shall consist of all the territory included within the following boundaries, to wit: Commencing at a point formed by the intersection of the thirty-eighth degree of longitude west from Washington with the thirty-seventh degree of north latitude; thence due west along said thirty-seventh degree of north latitude to the eastern boundary line of the state of California; thence in a northwesterly direction along the said eastern boundary line of the state of California to the forty-third degree of longitude west from Washington; thence north along said forty-third degree of west longitude and said eastern boundary line of the state of California to the forty-second degree of north latitude; thence due east along the said forty-second degree of north latitude to a point formed by its intersection with the aforesaid thirty-eighth degree of longitude west from Washington; thence due south down said thirty-eighth degree of west longitude to the place of beginning.

Nevada became a State by presidential proclamation dated October 31, 1864.

An act approved May 5, 1866, further enlarged the area of Nevada by the addition of territory taken from Utah and Arizona, described as follows (14 Stat. L. 43):

That, as provided for and consented to in the constitution of the State of Nevada, all that territory and tract of land adjoining the present eastern boundary of the State of Nevada, and lying between the thirty-seventh and the forty-second degrees of north latitude and west of the thirty-seventh degree of longitude west of Washington, is hereby added to and made a part of the State of Nevada.

That there is hereby added to and made a part of the State of Nevada all that extent of territory lying within the following boundaries, to wit: Commencing on the thirty-seventh degree of north latitude at the thirty-seventh degree of longitude west from Washington, and running thence south on said degree of longitude to the middle of the river Colorado to the West; thence down the middle of said river to the eastern boundary of the State of California; thence northwesterly along said boundary of California to the thirty-seventh degree of north latitude; and thence east along said degree of latitude to the point of beginning.

The present State of Nevada according to statute⁶⁶ is now bounded on the east by the 37th meridian of longitude west of Washington, on the south by the middle of Colorado River to the 35th parallel, on the southwest by the California line, on the west by the 120th meridian of longitude, and on the north by the 42d parallel.

The north boundary of Nevada was surveyed in 1873 from an initial point on the Utah-Nevada line, whose latitude had been carefully determined in 1871, westward to a post set in 1868 for the northeast corner of California. The measured distance was 310 miles 48 chains. The marks placed on the line were mounds of earth, wooden posts, or small stones. This line passed the meridian boundary between Idaho and Oregon at 152 miles 72 chains from the northeast corner of Nevada and 4 chains south of the terminal mark of the 1868 survey.

The boundary following the middle of the Colorado was further defined between Davis Dam and the California-Nevada line by a compact between Nevada and

⁶⁵ See California Senate Jour. for 1861, p. 630, and for 1862, p. 525.

⁶⁶ Enabling act of 1864 (13 Stat. L. 43) with additions of 1866 (14 Stat. L. 43).

Arizona that was approved by Congress June 16, 1861 (75 Stat. 93). It involves 31 points, chosen in the middle of the river as it was located at that time. Bearings and distances are given between successive points, and from monumented points which are horizontal control stations of the National Geodetic Survey or corners of the Public Land Survey.

The east boundary of Nevada, which follows the 37th meridian west of Washington, was surveyed in 1870. The longitude for the initial point was found by direct measurement east from Pilot Peak, whose latitude and longitude had been determined by triangulation from the Salt Lake City astronomic station. The assumed longitude of Pilot Peak was $114^{\circ}04'55.4''$ west from Greenwich; the latest determination (1939) by the U.S. Geological Survey is $114^{\circ}04'35.56''$ (1927 N.A.D.). The initial point thus selected for the boundary was in the middle of the track of the Central Pacific Railroad (now the Southern Pacific). From this point the line was run northward a measured distance of 46 miles 40 chains to a position which sextant observations indicated was the 42d parallel of latitude. In 1871 a long series of observations made with a zenith telescope showed that the mark at this point was too far north; consequently

it was moved south 1 mile 12 chains in 1873.

From the initial point the line was then run south to the Colorado River. At a point 1.16 chains south of the railroad track a granite shaft 8 feet high, its top dressed to 1 foot square and suitably marked, was placed in a pile of rocks, and 298 miles 56 chains south of the railroad a mark was set for the southwest corner of Utah. This mark was later found to be too far north and in 1901 was moved 1 mile 31.51 chains south. (See p. 160.) The distance as then measured, from the initial point on the railroad to the Colorado River, was 356 miles 23.76 chains. This part of the line as well as that north of the railroad was marked with wooden posts, single stones, or mounds of earth and stones.

The following positions on the boundary line between Utah and Nevada have been determined by the U.S. Coast and Geodetic Survey (Bowie, 1914, p. 105-107):

Mark	Latitude (N.)	Longitude (W.)	Mark	Latitude (N.)	Longitude (W.)
Monument -----	$41^{\circ}20'32.38''$	$114^{\circ}02'22.87''$	Line stake -----	$39^{\circ}58'57.40''$	$114^{\circ}02'45.58''$
Wooden post -----	$41^{\circ}01'15.92''$	$114^{\circ}02'27.74''$	Do -----	$39^{\circ}53'46.16''$	$114^{\circ}02'25.17''$
Do -----	$40^{\circ}56'06.87''$	$114^{\circ}02'29.23''$	Monument -----	$39^{\circ}09'45.08''$	$114^{\circ}02'52.31''$
Do -----	$40^{\circ}55'24.36''$	$114^{\circ}02'29.37''$	Line stake -----	$38^{\circ}00'50.90''$	$114^{\circ}02'49.31''$
Line stake -----	$40^{\circ}00'18.42''$	$114^{\circ}02'43.96''$	Do -----	$38^{\circ}03'47.09''$	$114^{\circ}02'58.41''$

For a discussion of the California-Nevada boundary, see California, p. 151, 152.

UTAH

The Mormons settled in Utah in 1847. In 1849 they organized a territorial government which they called Deseret, but a delegate sent to Congress was not recognized by that body.

Utah was established as a Territory by act of September 9, 1850, and included part of the area acquired from Mexico by the treaty of Guadalupe-Hidalgo. (See fig. 45.) Its limits are given in the following extract from the act by which it was created (9 Stat. L. 453):

All that part of the territory of the United States included within the following limits, to wit: bounded on the west by the State of California, on the north by the Territory of Oregon, and on the east by the summit of the Rocky Mountains, and on the south by the thirty-seventh parallel of north latitude, be, and the same is hereby, created into a temporary government, by the name of the Territory of Utah.

This area was reduced by the formation in 1861, of the Territories of Nevada (see p. 158) and Colorado

(see p. 141) and in 1862 and 1866 by the extensions eastward of the limits of the State of Nevada.

The present boundaries of Utah are by statute as follows: Commencing with the intersection of the 42d parallel of latitude with the 34th meridian of longitude west from Washington; running thence south on this meridian to the 41st parallel of latitude; thence east on this parallel to the 32d meridian of longitude; thence south on this meridian to its intersection with the 37th parallel of latitude; thence west upon this parallel of latitude to its intersection with the 37th meridian of longitude; thence north on this meridian to its intersection with the 42d parallel of latitude; thence east on the 42d parallel of latitude to the place of beginning.

The enabling act for Utah (28 Stat. L. 107), approved July 16, 1894, fixed its boundaries "as at present described." The admission to statehood was declared in effect by the President's proclamation of January 4, 1895.

The Utah-Idaho line was surveyed and marked in 1871 under the direction of the General Land Office. The initial point was fixed by reference to an astron-

omical station near the Bear River. The position for the terminal mark was determined by a long series of observations for latitude with a zenith telescope. The initial mark was a wooden post 8½ feet by 12 inches by 7 inches, marked "34° WL" on the east, "UTAH" on the southwest, "IDAHO" on the north west, and "42 L 1871" on the north, which was surrounded by a large pile of stones. From this point a line was run due west a measured distance of 153 miles 56 chains to a point where an 8-foot cedar post was set in a mound of rocks and suitably marked for the common corners of Nevada and Utah on the Idaho line. A mark set in 1870 for these corners was destroyed, the new mark being placed 1 mile 12 chains farther south.

The Utah-Arizona boundary, on the 37th parallel of latitude, was surveyed and marked in 1901. The mark set in 1870 for the southwest corner of Utah was destroyed, because observations for latitude showed that it was 1 mile 31.51 chains too far north. A new corner mark was established 7.88 chains south of the 300th mile mark of the Nevada boundary survey of 1870. This mark consisted of a sandstone post 6 feet by 16 inches by 12 inches, set in a pile of stones and marked "NEVADA" on the northwest, "UTAH" on the northeast, "ARIZONA" on the southeast, and "37 N L 1901" on the southwest. The line was run thence due east, checked by five latitude stations,⁶⁷ a measured distance of 277 miles 5.18 chains; the line intersected the post at the southwest corner of Colorado, set in 1875. The

mark for each mile of this line is a stone post or iron pipe. Between the 152d and 153d mile marks, the line passes over a sandstone butte, the summit of which rises about 1,000 feet above the plain. (See fig. 46.) Surveys by the General Land Office in 1927 show that there is a break in this line near long 110°30' W. (T. 43 S., R. 13 E., Salt Lake base and meridian), milepost 197 being 33 chains (2,178 feet) farther north than milepost 199.⁶⁸

For reference to the survey of the west boundary of Utah, see Nevada, page 159; and for reference to the east boundary, see Colorado, page 143. For the boundary with Wyoming, see page 145. All these lines were run under the direction of the General Land Office.

NEW MEXICO

The original area of New Mexico was taken in part from the region transferred by Mexico to the United States by the treaty of Guadalupe-Hidalgo and in part from the territory ceded by Texas. (See p. 28, 122; figs. 29, 47.) The act of Congress of September 9, 1850, fixing the northern boundary of the State of Texas west of the 103d meridian and providing for the payment of \$10 million to that State for land to be ceded to the United States, provided also for the creation of the Territory of New Mexico, when the transaction with Texas was completed. The formation of this Territory was announced by presidential proclamation of December 13, 1850.

The boundaries fixed in the act of 1850 were thus described (9 Stat. L. 447):

That all that portion of the territory of the United States bounded as follows: Beginning at a point in the Colorado River, where the boundary line with the Republic of Mexico crosses the same; thence eastwardly with the said boundary line to the Rio Grande; thence following the main channel of said river to the parallel of the thirty-

⁶⁷ For further reading on the settlement of Utah and its boundaries, see Brightman (1940, p. 87-95).

⁶⁸ For descriptions of these stations, see Beall (1925, p. 259).

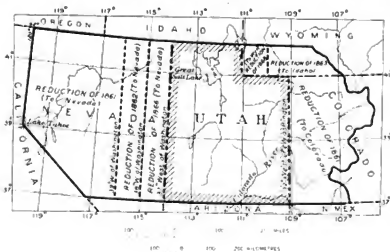


FIGURE 45.—Historical diagram of Utah.

second degree of north latitude; thence east with said degree to its intersection with the one hundred and third degree of longitude west of Greenwich; thence north with said degree of longitude to the parallel of thirty-eighth degree of north latitude; thence west with said parallel to the summit of the Sierra Madre; thence south with the crest of said mountains to the thirty-seventh parallel of north latitude; thence west with said parallel to its intersection with the boundary line of the State of California; thence with said boundary line to the place of beginning—be, and the same is hereby, erected into a temporary government by the name of the Territory of New Mexico.

There has been considerable uncertainty as to what mountain range was intended for the west boundary of New Mexico and the east boundary of Utah between lat 37° and 38° N. as fixed by the acts of 1850. The name *Sierra Madre* used in the New Mexico act is one given to many widely separated mountain groups. Emory (1857b, p. 40) refers to *Sierra Madre* as a general name for the mountains along the Continental Divide. On some old maps the name is given to the nearest mountains east of the Rio Grande between 37° and 38°. This group is now officially designated as a part

of the Rocky Mountain system. On other old maps the mountains west of the Rio Grande between 37° and 38° are called *Sierra Madre*. These are now known as the San Juan Mountains and are a part of the Continental Divide.

On the Melish map of 1818 the Mexican State of New Mexico is shown as extending north to lat 38° N. and including the Rio Grande basin. The Carey and Lea map of 1822 gives the boundaries of New Mexico between lat 32° and 38° N. as irregular lines including the Rio Grande basin. The Tanner map of 1846 of the United States of Mexico shows the western line of New Mexico as extending to about long 107°30' W. between lat 37° and 38° N. and including the drainage tributary



FIGURE 46.—Butte on the Utah-Arizona State line.

to the Rio Grande. The Disturnell map of 1847, referred to in the treaty of 1848 with Mexico, shows New Mexico as extending north to lat 40° N. and west to long 109° W., including the Rio Grande basin. A map of New Mexico compiled by 2d Lt. John C. Parke, published in 1851, shows the "Rocky Mountain Range" (referred to in the Utah act of 1850) between 37° and 38° as east of the Rio Grande. An undated map by "E. Gilman, draftsman," printed at "P. S. Duval's Steam Lith. Press, Phila.," probably published between 1849 and 1853, shows the boundary of New Mexico between 37° and 38° at about long 108° W. and names the mountains Sierra Madre.

On an official map published by the War Department in 1859 entitled "Territory and Military Department of New Mexico, compiled in the Bureau of Top'l Engrs.," the New Mexico boundary between 37° and 38° is plainly indicated as following the Continental Divide, west of the Rio Grande. On most other maps published between 1850 and 1960, the location of the New Mexico boundary is not indicated.

In fixing the summit of the Rocky Mountains as the eastern boundary of the Territory of Utah in the act of 1850, the lawmakers probably assumed that the main range of the Rocky Mountains followed the Continental Divide through what was then an unexplored area.

The Rio Grande is a stream of great importance to

New Mexico, and the only apparent reason for assigning to the Territory of New Mexico land north of lat 37° N. was to give it control of the Rio Grande basin. The Republic of Texas claimed an area as far west as the Rio Grande and from its source to the 42d parallel. The area north of the 32d parallel and west of the 103d meridian was sold by Texas to the United States in 1850, and it would seem logical to give the Rio Grande basin, which is all south of the 38th parallel, to New Mexico. (See fig. 47.)

Mr. L. R. Hafen, historian, department of history, Colorado State Historical and Natural History Society, in a letter of December 1, 1924, published in Colorado magazine in May 1926, wrote as follows:

The San Luis Valley through which the Rio Grande flows was actually administered as a part of New Mexico from 1850 to 1861. The governor and superintendent of Indian affairs reports on this area. In his report of September 1, 1854, Governor Merriweather says that the Utehs of New Mexico inhabit "all the northern tributaries of the Rio Grande which lie in New Mexico and north of the 37th parallel of latitude" 133d Cong., 2d sess., H. Ex. Doc. 1, Report of Commissioner of Indian Affairs to Secretary of the Interior. In 1860 the superintendent in New Mexico reports that Agent Head has been placed in charge of the Tsbahuache band of Utehs and his agency located on the Conejos west of the Rio Grande and north of 37°.

Fort Massachusetts, established in 1852 in the San Luis Valley, was under the jurisdiction of the Department of New Mexico. When Gunnison and Beckwith went through there in 1853 they spoke of the fort as being in New Mexico. G. H. Heap, accompanying Beale's expedition of the same year, speaks of the territory about Fort Massachusetts as the most fertile portion of New Mexico.

During the fifties a number of towns were founded in the San Luis Valley and were governed as parts of Taos County.

The national census of 1860 lists the towns of Costilla, Conejos, and others in San Luis Valley as parts of Taos County, N. Mex.



FIGURE 47.—Historical diagram of New Mexico.

This territory was enlarged on August 4, 1854, by the addition of the Gadsden Purchase (10 Stat. L. 575) and was reduced by the formation of Colorado Territory in 1861 (p. 141) and Arizona Territory in 1863 (p. 165). The boundaries as thus changed are the same as those of present-day New Mexico and are described as follows: Beginning at the point of intersection of the 103d meridian of longitude west of Greenwich with the 37th parallel of latitude; running thence south to its point of intersection with the 32d parallel of latitude; thence west on this parallel to its intersection with the Rio Grande; thence southerly down the main channel of the Rio Grande as it was September 9, 1850, to its point of intersection with the boundary line between the United States and Mexico; thence with this boundary to its intersection with the 32d meridian of longitude west from Washington; thence north along this meridian to the 37th parallel of latitude, and east along that parallel to the place of beginning.

The enabling act for the admission of New Mexico to the Union, dated June 16, 1906, included also provisions for the admission of Oklahoma and Arizona, the boundaries of each to be "as at present described." (34 Stat. L., pt. 1, 267.) Further provisions for the admission of New Mexico were made by the act of June 20, 1910 (36 Stat. L., pt. 1, 557), and by the joint resolution of August 21, 1911 (37 Stat. L., pt. 1, 39), which required the acceptance of the Texas-New Mexico boundary line as described in the joint resolution of February 16, 1911 (p. 124). The proclamation by the President declaring New Mexico's admission to statehood in effect was dated January 6, 1912.

In 1874, John G. Major began his survey of the east boundary of New Mexico at the Johnson monument for the 103d meridian (see Colorado, p. 141), 57 miles 4.50 chains west of the southeast corner of Colorado and 142.00 chains west of the Macomb monument already referred to. Major then surveyed his line for the east boundary of New Mexico south 34 miles and 40 chains to a point which he designated the northwest corner of Texas. However, he did not find the true northwest corner of Texas established by John H. Clark. Subsequent retracements show that Major's line is 2 miles 13.50 chains west of the northwest corner of Texas established by Clark and 4 miles 28.50 chains west of the Chaney and Smith position for the Cimarron meridian in long 103° W.

For reference to the New Mexico-Oklahoma line, see page 140; the New Mexico-Texas line, page 124; and the New Mexico-Colorado line, page 142.

From the south end of the Oklahoma-New Mexico boundary line, there is a jog in the New Mexico east line of about 2.1 miles westward along the Texas north line to long 103°02'28.27" W. (1927 N.A.D.).

The line between New Mexico and Arizona was surveyed in 1875 under the direction of the General Land Office by C. Robbins on a meridian determined by reference to a peak named The Needles, located by the Wheeler Survey in 1874. Robbins refers to this point as the "southwest needle point of Wilson's Peak" and gives its position as lat 36°41'40.3" N., long 108°50'26.1" W.⁶⁹ This peak is now known as Ship Rock. The summit was considered to be inaccessible until 1940, but many climbers have reached the top since that time (Baars, 1972, p. 212). (See fig. 48.) It is an intersected point in the triangulation of the U.S. Coast and Geodetic Survey. The line was run west and north to the intersection of the 32d meridian west of Washington with the south boundary of Colorado as marked by Darling in 1868 (see p. 141). Robbins' point was 1 mile 45 chains east of the earlier mark established for the southwest corner of Colorado and became the accepted location of "the four corners" (see p. 142). The position was marked by a sandstone monument and was used later in running the boundary between Colorado and Utah and that between Utah and Arizona. Because it was not possible to make astronomic observations from the boundary corner, a 28-inch cottonwood tree a few hundred feet away was cut down and the stump used as a pedestal for the theodolite. Observations were made for latitude, azimuth, and time. The geodetic position of the monument has since been determined as lat 36°59'56.30" N., long 109°02'40.24" W. (1927 N.A.D.).

From the monument, the line was surveyed south, with marks at mile intervals (most of them small stones inscribed "ARIZ" on the west side and "N MEX" on the east), a measured distance of 390 miles 48.31 chains to an intersection with the United States and Mexico boundary line. This intersection was marked by the 1891-96 Mexican boundary survey with monument 71, whose position is given as lat 31°19'56.35" N., long 109°02'56.82" W. (approximate 1927 N.A.D.).

For a description of the south boundary, see pages 29 and 124. (See fig. 49.)

Suit was instituted in the U.S. Supreme Court in the October term, 1920, by New Mexico against Texas to have the boundary between the two States, south of lat 32° N., fixed at the midchannel of the Rio Grande

⁶⁹ The position given in Tables of Geographic Positions, from data gathered by parties of the U.S. Geographical Surveys west of the 100th Meridian, is lat 36°41'28.0" N., long 108°50'16.1" W. (Macomb, 1885, p. 22).



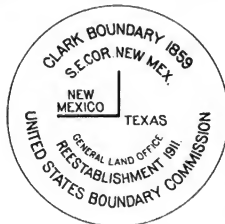


FIGURE 49.—Marks on the tablet at the southeast corner of New Mexico.

as it flowed in 1850, when New Mexico was made a Territory; the New Mexico claim was that prior to an avulsion which occurred in 1864, the river was in many places east of its present position. In the case before the Supreme Court, both States agreed to the boundary being the midchannel as it was in 1850, but each presented a different map to show its location. The Court appointed a special master who filed a report that the correct boundary was as claimed by Texas. The intersection of this line with the 32d parallel was stated to be 750 feet west of Clark monument 1, reestablished by commissioners in 1911. (275 U.S. 279; 276 U.S. 559.) A commissioner was designated on April 9, 1928, to survey and mark the boundary, and his report (283 U.S. 788) was confirmed by the Court on March 23, 1931. There are now 105 concrete monuments on the line.

ARIZONA

Arizona was organized as a Territory by act of February 24, 1863, from the western part of the Territory of New Mexico (fig. 47) with boundaries described as follows (12 Stat. L. 665):

That all that part of the present Territory of New Mexico situate west of a line running due south from the point where the south-west corner of the Territory of Colorado joins the northern boundary of the Territory of New Mexico to the southern boundary line of said Territory of New Mexico be, and the same is hereby, erected into a temporary government by the name of the Territory of Arizona.

In 1866 an area of approximately 11,600 square miles north of the middle of the Colorado River and west of the 37th meridian west from Washington was added to Nevada (14 Stat. L. 43).

The admission of Arizona to the Union was provided for in acts of June 16, 1906 (34 Stat. L., pt. 1, p. 267), and June 20, 1910 (36 Stat. L., pt. 1, p. 570), and in a joint resolution approved August 21, 1911 (37 Stat. L., pt. 1, p. 39). It was declared in effect by proclamation dated February 14, 1912.

The present boundaries of Arizona are described as follows: Beginning at the point of intersection of the 37th parallel of latitude with the 32d meridian of longitude west from Washington; thence south along this meridian to its intersection with the boundary line between the United States and Mexico; thence with this boundary to the Colorado River; thence up the middle of the main channel of the Colorado River to its point of intersection with the 37th meridian of longitude; north on this meridian to its intersection with the 37th parallel; and eastward along the 37th parallel to the place of beginning.

For reference to surveys of the boundaries, see pages 29, 160, and 163.

The part of the boundary that lies in the Colorado River downstream from the mouth of the Gila River is also the international boundary with Mexico. (See the Gadsden Purchase, p. 29.) The treaty between the United States and Mexico signed November 23, 1970 (TIAS 7313), has as one of its purposes to "Minimize the changes in the channels of these rivers [the Rio Grande and Colorado] and should these changes occur, attempt to resolve the problems arising therefrom promptly and equitably."

ALASKA

In 1946, at the general election, Alaskans voted in favor of statehood. In subsequent sessions of Congress, bills were introduced to admit Alaska to statehood. At a State election in 1955, delegates were chosen to meet and draft a constitution. This proposed constitution was approved by the voters in April 1956. An enabling act was passed by Congress and signed by the President on July 7, 1958 (72 Stat. 339). The Presidential proclamation admitting Alaska as the 49th State was issued on January 3, 1959.

The statehood act defines the boundaries of the State simply in these words:

The State of Alaska shall consist of all the territory, together with the territorial waters appurtenant thereto, now included in the Territory of Alaska.

For a discussion of the boundaries of the Territory and their legal definition, see pages 29-33.

The question arose as to whether the waters of Cook Inlet were part of the territorial sea. Legal action brought a decision by the District Court (352 FS 850) which was confirmed by the Court of Appeals (497 F₂ 155) to the effect that Cook Inlet is a historic bay and as such is territorial waters. Its seaward boundary is defined as extending from Cape Douglas to Point Gore and including the Barren Islands. The decision is awaiting review by the U.S. Supreme Court.

The great size of Alaska and the difficulty of access to much of the terrain made the survey of the public lands on the rectangular system too costly. Such surveys on the ground were not needed over most of the area. It was desirable to be able to describe a parcel of land with reference to principal meridians and base lines as had been done in the coterminous 48 States. Additional initial points were selected and townships and ranges were referenced to them. (See fig. 16.) This system is called *protractions*. The coordinate values of any subdivision boundary are determined by computation according to the methods approved by the Bureau of Land Management.

It has been the policy of the Federal Government to give one or more sections of each township of the public lands to the States for their disposal and revenue. In the case of Alaska, more than 100 million acres is being conveyed to State ownership to meet its needs for revenue. The areas conveyed are referred to as "State Selections" and are generally in large blocks and conform to the rectangular system. Survey of the

exterior boundaries of these blocks is the responsibility of the Bureau of Land Management.

The constitution provides for minor civil divisions called boroughs. Eleven boroughs have been established (1975) around major centers of population. By far the greater part of the State is not included in any borough.

The census of 1960 gave the population of Alaska as 226,167. This figure includes 43,081 Indians and Eskimos, who are U.S. citizens.

HAWAII

Statehood bills for Hawaii were introduced in Congress beginning in 1922. For various reasons, Congress was reluctant to make Hawaii a State, one being the fact that it is not contiguous to the continental United States. After the admission of Alaska, the objections seemed to carry less weight. A constitution had been drafted in 1950 and approved that year and again in 1959. The statehood act was passed by the U.S. Senate on March 11, 1959, passed by the House on the following day, and signed by the President on March 18, 1959 (73 Stat. 4). The Presidential proclamation admitting Hawaii as the 50th State was signed on August 21, 1959.

the statehood act defines the State as including the following:

All the islands, together with their appurtenant reefs and territorial waters, included in the Territory of Hawaii on the date of the enactment of this act, except Palmyra Island, Midway, Johnston, and Sand Islands, and Kingman Reef.

For a list of the islands included in the former Territory, see pages 33 and 34.

The population of Hawaii according to the 1960 census was 632,772. It is interesting to note that of this number, 203,455 are classed as Japanese, 114,405 as Hawaiian, 69,070 as Filipino, and 38,197 as Chinese. All these groups have U.S. citizenship.

GENERAL STATISTICS RELATING TO THE UNITED STATES

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GENERAL STATISTICS RELATING TO THE UNITED STATES

ORGANIZATION OF THE U.S. GOVERNMENT

The name "United States of America" was used in the Declaration of Independence, July 4, 1776, and the use of the name "United States" for all State papers was ordered by the Continental Congress on September 9, 1776. The first of the "Articles of Confederation and perpetual Union * * *" of 1777, is "The title of this Confederacy shall be The United States of America."

The Articles of Confederation were agreed to by delegates from the Thirteen Original Colonies on November 15, 1777. The defects in the form of government thereby instituted were so many that steps were soon taken to change it. A convention called in 1787 to draft a constitution for the United States completed its labors on September 17 of the same year. The Constitution of the United States of America was ratified and the Thirteen Original States became members of the Union on various dates between 1787 and 1790 (table 4).

Table 4.—Date and order of admission of the 50 States into the Union

1. DelawareDec. 7, 1787	26. MichiganJan. 26, 1837
2. PennsylvaniaDec. 12, 1787	27. FloridaMar. 3, 1845
3. New JerseyDec. 18, 1787	28. TexasDec. 29, 1845
4. GeorgiaJan. 2, 1788	29. IowaDec. 28, 1845
5. ConnecticutJan. 9, 1788	30. WisconsinMay 29, 1848
6. MassachusettsFeb. 6, 1788	31. CaliforniaSept. 9, 1850
7. MarylandApr. 28, 1789	32. MinnesotaMay 11, 1858
8. South CarolinaMay 23, 1788	33. OregonFeb. 14, 1859
9. New HampshireJune 21, 1788	34. KansasJan. 29, 1861
10. VirginiaJune 20, 1788	35. West VirginiaJune 19, 1863
11. New YorkJuly 26, 1788	36. NevadaOct. 31, 1864
12. North CarolinaNov. 21, 1789	37. NebraskaMar. 1, 1867
13. Rhode IslandMay 29, 1790	38. ColoradoAug. 1, 1876
14. VermontMar. 4, 1791	39. North DakotaNov. 2, 1889
15. KentuckyJune 1, 1792	40. South DakotaNov. 2, 1889
16. TennesseeJune 1, 1796	41. MontanaNov. 8, 1889
17. OhioFeb. 19, 1803	42. WashingtonNov. 11, 1889
18. LouisianaApr. 30, 1812	43. IdahoJuly 3, 1890
19. IndianaDec. 11, 1816	44. WyomingJuly 10, 1890
20. MississippiDec. 10, 1817	45. UtahJan. 4, 1896
21. IllinoisDec. 3, 1818	46. OklahomaNov. 16, 1907
22. AlabamaDec. 14, 1819	47. New MexicoJan. 6, 1912
23. MaineMar. 15, 1820	48. ArizonaFeb. 14, 1912
24. MissouriAug. 10, 1821	49. AlaskaJan. 3, 1959
25. ArkansasJune 15, 1836	50. HawaiiAug. 21, 1959

THE U.S. FLAG

Congress, by act approved April 4, 1818, effective July 4, 1818,¹⁰ ordered that "the flag of the United

States be thirteen horizontal stripes, alternate red and white; that the union be twenty stars [there were then 20 States], white in a blue field," and that "on the admission of every new State into the Union, one star be added to the union of the flag" on the 4th of July following.

EARLY SESSIONS OF CONGRESS

The place and time of the early sessions of Congress are indicated below.

Continental Congress and Congress of the Confederation

Philadelphia	Sept. 5, 1774, to Oct. 26, 1774.
Do	May 10, 1775, to Dec. 12, 1776.
Baltimore	Dec. 20, 1776, to Mar. 4, 1777.
Philadelphia	Mar. 5, 1777, to Sept. 18, 1777.
Lancaster, Pa.	Sept. 27, 1777 (1 day only).
York, Pa.	Sept. 30, 1777, to June 27, 1778.
Philadelphia	July 2, 1778, to June 21, 1783.
Princeton, N.J.	June 30, 1783, to Nov. 4, 1783.
Annapolis, Md.	Nov. 26, 1783, to June 3, 1784.
Trenton, N.J.	Nov. 1, 1784, to Dec. 24, 1784.
New York City	Jan. 11, 1785, to Nov. 4, 1785.
Do	Nov. 7, 1785, to Nov. 3, 1786.
Do	Nov. 6, 1786, to Oct. 30, 1787.
Do	Nov. 5, 1787, to Oct. 21, 1788.
Do	Nov. 3, 1788, to Mar. 2, 1789.

U.S. Congress

New York City	Mar. 4, 1789, to Sept. 29, 1789
Do	Jan. 4, 1790, to Aug. 12, 1790.

Philadelphia was the meeting place for subsequent sessions from December 6, 1790, until November, 1800, when the seat of Government was moved to Washington.¹¹

AREAS OF THE STATES AND OVERSEAS TERRITORY

The following information relating to the area of the United States and its overseas territory has been assembled in tabular form for convenient reference. The areas are approximate only. Exact outlines of drainage

¹⁰ 1 Stat. L. 130. See "A Biographical Congressional Directory," U.S. 61st Cong., 2d sess., S. Doc. 654, p. 25, 1913, and 69th Cong., 2d sess., H. Doc. 793, 2d sess., p. 1, 1928, for places and dates of meetings of the Continental Congress. See annual Congressional Directory for dates and meetings of the U.S. Congress; also U.S. 69th Cong., 1st sess., H. Doc. 398, p. 1062, 1927. U.S. 96th Cong., 2d sess., H. Doc. 552, 1960, gives illustrations of the eight buildings in which sessions of Congress were held.

¹¹ 3 Stat. L. 415. See also 1 Stat. L. 341 and Preble (1917)

BOUNDARIES OF THE UNITED STATES AND THE SEVERAL STATES

basins of large rivers that form boundaries are in many places not well established even on the best maps.

Original area of the United States and areas of continental changes (except Alaska and Canal Zone)

	Square miles
The territory of the United States, as recognized by Great Britain in 1783: The area limited by the present accepted northern boundary from eastern Maine to a point near the northwesternmost angle of the Lake of the Woods, thence by a direct line to the source of the Mississippi River, down that river to the 31st parallel of latitude, thence eastward along that parallel and the north line of Florida to the Atlantic Ocean (excluding the water surfaces of the Great Lakes, except Lake Michigan, and the Atlantic Ocean)	869,735
The parts of the Great Lakes on the international boundary which are under the jurisdiction of the United States	38,550
A 3-mile strip along the Atlantic coast	5,000
Louisiana Purchase, 1803: The part of the drainage basin of the Mississippi River west of that river, including the basin of the Missouri River and the area south of the 31st parallel between the Mississippi and Perdido Rivers:	
South of the 49th parallel	909,130
North of the 49th parallel	250
Red River Basin and Lake of the Woods drainage: South of the 49th parallel, west of the head of the Mississippi River	48,080
By treaty with Spain in 1819 the United States acquired East and West Florida, an area of 58,666 square miles,	

	Square miles
and areas west of the Mississippi River (principally in Louisiana) amounting to 22,834 square miles, but relinquished to Spain 97,150 square miles (of the Louisiana Purchase), or a net loss of	15,650
Texas, annexed in 1845 (including 95,650 sq mi of the area relinquished to Spain in 1819)	388,687
Oregon Territory, title established in 1846	286,541
Mexican cession, 1848 (included 775 sq mi relinquished to Spain in 1819)	529,189
Gadsden Purchase, 1853	29,670

¹ This value was obtained by adding the accepted areas of the 24 States and the District of Columbia (723,947 sq mi) which lie wholly within the 1783 treaty limits, including the parts of Alabama (49,359 sq mi) and Mississippi (44,079 sq mi) north of lat 31° N. and the part of Minnesota (29,950 sq mi) east of the Mississippi and Lake of the Woods line. The Lake Michigan area (22,400 sq mi) was also included, as it is within the original cession.

² If it is assumed that the United States had no valid claim to the area south of lat 31° N. and between the Perdido and Mississippi Rivers, then this value should be reduced by an area of 13,433 sq mi and that amount added to the area of the Florida Purchase. Of the 13,433 sq mi, 2,639 sq mi is now a part of Alabama, 2,786 a part of Mississippi and 8,008 a part of Louisiana.

³ Areas from Bond, (1912, p. 13), chief clerk, General Land Office.

Table 5, showing land and water areas, is taken from the "Statistical Abstract of the United States," 1962, published by the U.S. Bureau of the Census. The water areas include only "inland water" as defined below, and exclude those parts of the Great Lakes and certain other bodies of water under the jurisdiction of the United States.

The average or mean area of the 50 States is 72,303 square miles.

Table 6 (p. 170) includes the areas of overseas territory of the United States. These figures also were taken from the "Statistical Abstract" of the U.S. Bureau of the Census.

Table 5.—Land and water area of the United States, by States

State(s)	Area, in square miles		
	Total	Land ¹	Inland water ²
United States	3,615,211	3,548,974	66,237
New England	66,600	63,118	3,482
Maine	33,218	31,015	2,203
New Hampshire	9,281	8,991	290
Vermont	9,613	9,280	333
Massachusetts	8,267	7,877	390
Rhode Island	1,209	1,053	156
Connecticut	5,012	4,902	110
Middle Atlantic	102,267	99,929	2,278
New York	49,106	47,471	1,637
New Jersey	7,790	7,475	315
Pennsylvania	45,309	44,983	326
East North Central	248,642	245,190	3,472
Ohio	41,315	41,065	250
Indiana	36,180	36,074	106
Illinois	56,337	55,867	470

Table 5.—Land and water area of the United States, by States—Continued

State(s)	Area, in square miles		
	Total	Land ¹	Inland water ²
Michigan	56,692	57,495	1,197
Wisconsin	56,138	54,689	1,449
West North Central	517,822	510,249	7,573
Minnesota	84,403	85,344	4,059
Iowa	56,278	56,020	258
Missouri	69,714	69,166	548
North Dakota	70,704	69,496	1,208
South Dakota	77,112	76,443	669
Nebraska	77,331	76,716	615
Kansas	82,280	82,064	216
South Atlantic	278,525	267,319	11,207
Delaware	2,043	1,964	79
Maryland	10,444	9,741	703
District of Columbia	69	61	8
Virginia	40,595	39,618	977
West Virginia	24,229	24,127	102
North Carolina	52,666	49,021	3,645
South Carolina	31,104	30,321	783
Georgia	58,914	58,312	602
Florida	58,462	54,154	4,308
East South Central	181,898	179,842	2,056
Kentucky	40,411	39,879	532
Tennessee	42,121	41,639	482
Alabama	51,682	51,133	549
Mississippi	47,684	47,191	493
West South Central	437,641	428,088	9,553
Arkansas	53,214	52,609	605
Louisiana	47,711	44,294	3,417
Oklahoma	69,956	68,924	1,032
Texas	266,760	262,261	4,499
Mountain	863,567	856,631	6,936
Montana	147,033	145,631	1,402
Idaho	83,579	82,730	849
Wyoming	97,814	97,311	503
Colorado	104,111	103,748	363
New Mexico	121,595	121,439	156
Arizona	113,391	113,657	334
Utah	84,850	82,303	2,577
Nevada	110,564	109,812	752
Pacific	920,281	900,601	19,680
Washington	68,078	66,595	1,483
Oregon	97,074	96,341	733
California	158,616	156,496	2,120
Alaska	590,066	574,731	15,335
Hawaii	6,447	6,438	9

¹ Dry land and land temporarily or partially covered by water, such as marshland, swamps, and river flood plain streams, sloughs, estuaries, and ponds less than 40 acres in area.

² Permanent inland water surface, such as lakes, reservoirs, and ponds having 40 acres or more of area, streams, sloughs, estuaries, and canals more than one-eighth of a statute mile in width, deeply indented em-

bayments and sounds, and other coastal waters behind or sheltered by headlands or islands separated by less than 1 nautical mile of water, and islands of less than 40 acres of area. Does not include water surface of the oceans, bays, the Gulf of Mexico, the Great Lakes, Long Island Sound, Puget Sound, and the Straits of San Juan de Fuca and Georgia, lying within the jurisdiction of the United States.

BOUNDARIES OF THE
UNITED STATES AND THE SEVERAL STATES

Table 6.—Area of the United States

Region	Area, in square miles		
	Total	Land	Inland water
The 50 States and the District of Columbia	3,617,204	3,550,967	66,237
Conterminous United States	3,020,691	2,969,798	50,893
Overseas territory:			
Puerto Rico	3,497	3,463	14
Virgin Islands of the United States	133	132	1
Guam	212	209	3
American Samoa	76	76	0
Panama Canal Zone	647	372	275

GEOGRAPHIC CENTERS OF THE
CONTINENTAL UNITED STATES AND THE
SEVERAL STATES¹²

There being no generally accepted definition of "geographic center" and no completely satisfactory method for determining it, a State or country may have as many geographic centers as there are definitions of the term. The geographic center of an area may be defined as the center of gravity of the surface, or that

¹² Other information on geographic centers is contained in Adams (1932, p. 586-587) and Culley (1949, p. 98-99).

point on which the surface of the area would balance if it were a plane of uniform thickness.

No marked or monumented point has been established by any Government agency as the geographic center of either the 50 States, the conterminous United States, or the North American Continent. However, a monument was erected in Lebanon, Kansas, by a group of citizens who hired engineers to determine the position of the geographic center of the United States.

Meades Ranch triangulation station, about 12 miles north of Lucas, Kansas, is sometimes confused with the geographic center of the United States. This triangulation station is the reference point for all property lines and city, county, State, and international boundaries on the North American Continent that are tied to the national triangulation networks of the United States, Canada, Mexico, and Central America. Its location is lat 39°12'26.686" N., long 98°32'30.506" W. This triangulation station is the base point or origin of geodetic positions and directions in the triangulation net of the United States because it is at the junction of the main east-west transcontinental triangulation arc stretching from the Atlantic to the Pacific Coast and the main north-south arc, which follows approximately the 98th meridian from the Canadian border to the Rio Grande. (See page 6.)

Because many factors, such as the curvature of the Earth, large bodies of water, and irregular surfaces, affect the determination of geographic centers, the locality of the centers (table 7) should be considered as approximations only.

The geographic center of the conterminous United States (48 States) is near Lebanon, Smith County, Kansas. Its latitude is 39°50' N. and its longitude is 98°35' W. (Deetz, 1918, p. 57.)

Table 7.—Geographic centers of the several States

State	County	Locality
Alabama	Chilton	12 miles southwest of Clanton.
Alaska		63°50' N., 152°00' W., 60 miles northwest of Mount McKinley.
Arizona	Yavapai	55 miles east-southeast of Prescott.
Arkansas	Pulaski	12 miles northwest of Little Rock.
California	Madera	38 miles east of Madera.
Colorado	Park	33 miles northwest of Pikes Peak.
Connecticut	Hartford	At East Berlin.
Delaware	Kent	11 miles south of Dover.
District of Columbia		Near Fourth and L Streets NW.
Florida	Hernando	12 miles north-northwest of Brookville.
Georgia	Twiggs	19 miles southwest of Macon.
Hawaii	Hawaii	20°15' N., 156°20' W., off Maui Island.
Idaho	Custer	At Custer, southwest of Challis.
Illinois	Logan	29 miles northeast of Springfield.
Indiana	Bocoe	14 miles north-northwest of Indianapolis.

Table 7.—Geographic centers of the several States—Continued

State	County	Locality
Iowa	Story	5 miles northeast of Ames.
Kansas	Barton	15 miles northeast of Great Bend.
Kentucky	Marion	3 miles north-northwest of Lebanon.
Louisiana	Avoyelles (parish)	3 miles southeast of Marksville.
Maine	Piscataquis	18 miles north of Dover.
Maryland	Prince Georges	4½ miles northwest of Davidonsville.
Massachusetts	Worcester	North part of city of Worcester.
Michigan	Westford	5 miles north-northwest of Cadillac.
Minnesota	Crow Wing	10 miles southwest of Brainerd.
Mississippi	Leake	9 miles west-northwest of Carthage.
Missouri	Miller	20 miles southwest of Jefferson City.
Montana	Feigus	12 miles west of Lewistown.
Nebraska	Custer	10 miles northwest of Broken Bow.
Nevada	Lander	26 miles southeast of Austin.
New Hampshire	Belknap	3 miles east of Ashland.
New Jersey	Mercer	5 miles southeast of Trenton.
New Mexico	Torrance	12 miles south-southwest of Willard.
New York	Madison	6 miles south-southeast of Oneida.
North Carolina	Chatham	10 miles northwest of Sanford.
North Dakota	Sheridan	5 miles southwest of McClusky.
Ohio	Delaware	25 miles north-northeast of Columbus.
Oklahoma	Oklahoma	8 miles north of Oklahoma City.
Oregon	Crook	25 miles south-southeast of Prineville.
Pennsylvania	Centre	2½ miles southwest of Bellefonte.
Rhode Island	Kent	1 mile south-southwest of Crompton.
South Carolina	Richland	13 miles southeast of Columbia.
South Dakota	Hughes	8 miles northeast of Pierre.
Tennessee	Rutherford	5 miles northeast of Murfreesboro.
Texas	Mculloch	15 miles northeast of Brady.
Utah	Sanpete	3 miles north of Mant.
Vermont	Washington	3 miles east of Roxbury.
Virginia	Buckingham	5 miles southwest of Buckingham.
Washington	Chelan	10 miles west-southwest of Wenatchee.
West Virginia	Braxton	4 miles east of Sutton.
Wisconsin	Wood	9 miles southeast of Marshfield.
Wyoming	Fremont	58 miles east-northeast of Lander.

EXTREME AND MEAN ALTITUDES OF U.S. TERRITORY AND THE CONTINENTS

The following altitudes (table 8), which give the height of the land above sea level, unless otherwise stated, were determined by the Geological Survey. Inasmuch as the United States is not entirely mapped, the locations of the highest and lowest points, as well as the values given for some of the points, are doubtful and are subject to change as the areas are mapped.

The highest point within the conterminous 48 States is Mount Whitney—14,494 feet above sea level. The lowest point of dry land is in Death Valley—282 feet

below sea level. These two points, both in California, are only 86 miles apart. (See figs. 50, 51.)

The following list (table 9) is given to permit a comparison between altitudes in the United States and those in other parts of the world. These figures are subject to change as better maps become available. However, the information on North America is accurate.

The altitude of Mount Everest was reported to the National Geographic Society by Brigadier I. H. R. Wilson, Surveyor General of India, as 29,028 feet. This determination was made by the Survey of India from observations and calculations in 1952-54. An accurate altitude for the summit of a mountain as high and as



Highest and Lowest Points in the Conterminous United States, Both in California
and Only 86 Miles Apart

FIGURE 50 (above).—Mount Whitney, 14,494 feet above sea level. View is from
Owens Valley. (Photograph by Bruce Barnbaum, Los Angeles, Calif.)

FIGURE 51 (opposite).—Two views of Death Valley:

Above, Badwater, the lowest area in the valley at 282 feet below sea level,
and Telescope Peak in the Panamint Range in the background. (Photo-
graph by Josef Muench, Santa Barbara, Calif.)

Below, View across sand dunes toward the Armagosa Range. (Photograph
by Bruce Barnbaum, Los Angeles, Calif.)

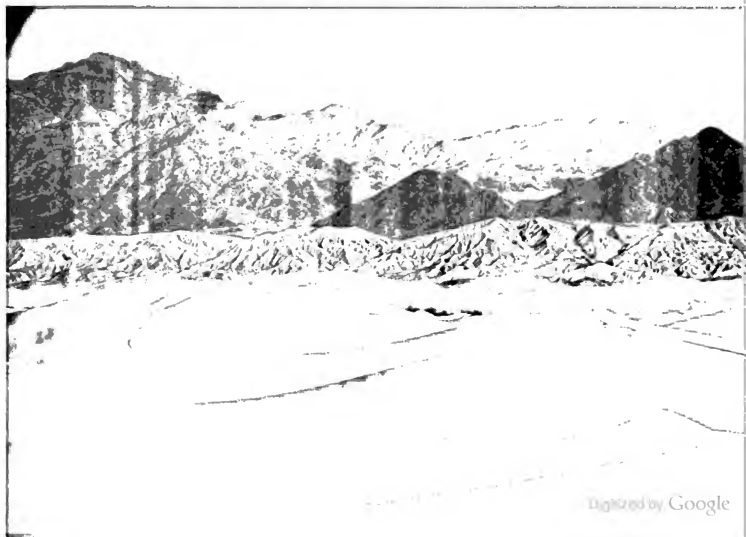


Table 8.—Extreme and mean altitudes in the United States and its overseas territory
[Corrected to February 1975]

State or region	Highest point			Lowest point			Approximate mean altitude (feet) ¹
	Name	County	Altitude (feet)	Name	County	Altitude (feet)	
Alabama	Cheaha Mountain	Cleburne	2,407	Gulf of Mexico		Sea level	500
Alaska	Mount McKinley		20,320	Pacific Ocean		do	1,900
Arizona	Humphreys Peak	Cocconino	12,633	Colorado River	Yuma	70	4,100
Arkansas	Magazine Mountain	Logan	2,753	Quachita River	Ashley-Union	55	650
California	Mount Whitney	Inyo-Tulare	14,494	Death Valley	Inyo	-282	2,900
Canal Zone	Cerro Galera	Balboa District	1,205	Atlantic Ocean		Sea level	100
Colorado	Mount Elbert	Lake	14,431	Arkansas River	Prowers	3,350	6,800
Connecticut	Mount Frissel, on south slope	Litchfield	2,380	Long Island Sound		Sea level	500
Delaware	On Ebright Road	New Castle	442	Atlantic Ocean		do	60
District of Columbia	Tenleytown	Northwest part	410	Potomac River		do	150
Florida	Sec. 30, T. 6 N., R. 20 W.	Walton	345	Atlantic Ocean		do	100
Georgia	Brasstown Bald	Town-Union	4,784	do		do	600
Guam	Mount Lamlam	Agat District	1,329	Pacific Ocean		do	650
Hawaii	Mauna Kea	Hawaii	13,796	do		do	1,990
Idaho	Borah Peak	Custer	12,662	Snake River	Nez Perce	710	5,000
Illinois	Charles Mound	Jo Daviess	1,235	Mississippi River	Alexander	279	600
Indiana	Franklin Township, Sec. 3, T. 15 N., R. 1 W.	Wayne	1,257	Ohio River	Vanderburg	320	700
Iowa	T. 100 N., R. 44 W.	Oceola	1,670	Mississippi River	Lee	480	1,100
Kansas	Mount Sunflower, Sec. 12 T. 12 S., R. 43 W.	Wallace	4,039	Verdigris River	Montgomery	700	2,000
Kentucky	Black Mountain	Harlan	4,145	Mississippi River	Fulton	257	750
Louisiana	Driskill Mountain	Bienville	535	New Orleans	Orleans	-5	100
Maine	Mount Katahdin	Piscataquis	5,268	Atlantic Ocean		Sea level	600
Maryland	Backbone Mountain, near Kempson, W. Va.	Garrett	3,360	do		do	350
Massachusetts	Mount Greylock	Berkshire	3,491	do		do	500
Michigan	Mount Curwood, Sec. 30, T. 50 N., R. 31 W.	Baraga	1,980	Lake Erie		572	900
Minnesota	Eagle Mountain	Cook	2,301	Lake Superior		602	1,200
Mississippi	Woodall Mountain, near Iuka	Tishomingo	806	Gulf of Mexico		Sea level	300
Missouri	Tsum Saak Mountain	Iron	1,772	St. Francis River	Dunklin	230	800
Montana	Granite Peak	Park	12,799	Kootenai River	Lincoln	1,800	3,400
Nebraska	Johnson Township	Kimball	5,426	Southeast corner of State	Richardson	840	2,600
Nevada	White Mountains, Boundary Peak	Esmeralda	13,143	Colorado River	Clark	470	5,500
New Hampshire	Mount Washington	Coos	6,288	Atlantic Ocean		Sea level	1,000
New Jersey	High Point	Sussex	1,803	do		do	250
New Mexico	Wheeler Peak	Taos	13,161	Red Bluff Reservoir	Eddy	2,817	5,700
New York	Mount Marcy	Essex	5,344	Atlantic Ocean		Sea level	1,000

Table 8.—Extreme and mean altitudes in the United States and its overseas territory—Continued
[Corrected to February 1975]

State or region	Highest point			Lowest point			Approximate mean altitude (feet) ¹
	Name	County	Altitude (feet)	Name	County	Altitude (feet)	
North Carolina	Mount Mitchell	Yancey	6,684	Atlantic Ocean		Sea level	700
North Dakota	White Butte	Slope	3,506	Red River	Pembina	750	1,900
Ohio	Campbell Hill	Logan	1,550	Ohio River	Hamilton	433 ²	850
Oklahoma	Black Mesa	Cimarron	4,973	Red River	McCurtain	300	1,300
Oregon	Mount Hood	Clackamas-Hood River	11,235	Pacific Ocean		Sea level	3,300
Pennsylvania	Mount Davis	Somerset	3,213	Delaware River	Delaware	do	1,100
Puerto Rico	Cerro de Punta	Ponce District	4,389	Atlantic Ocean		do	
Rhode Island	Jeremoth Hill	Providence	812	do		do	200
Samoa	Lala	Tau Island	3,160	Pacific Ocean		do	
South Carolina	Sassafras Mountain	Pickens	3,560	Atlantic Ocean		do	350
South Dakota	Harney Peak	Pennington	7,242	Big Stone Lake	Roberts	962	2,200
Tennessee	Clingmans Dome	Sevier	6,643	Mississippi River	Shelby	182 ³	900
Texas	Guadalupe Peak	Culberson	8,751	Gulf of Mexico		Sea level	1,700
Utah	Kings Peak	Duchesne	13,528	Beaverdam Creek	Washington	2,180	6,100
Vermont	Mount Mansfield	Lamoille	4,393	Lake Champlain	Franklin	95	1,600
Virginia	Mount Rogers	Grayson-Smyth	5,729	Atlantic Ocean		Sea level	950
Virgin Islands	Crown Mountain	Island of St. Thomas	1,556	do		do	750
Washington	Mount Rainier (fig. 52)	Pierce	14,410	Pacific Ocean		do	1,700
West Virginia	Spruce Knob	Pendleton	4,862	Potomac River	Jefferson	240	1,500
Wisconsin	Timms Hill	Price	1,952	Lake Michigan		581 ⁴	1,050
Wyoming	Gannett Peak	Fremont	13,804	Beile Fourche River	Crook	3,100	6,700
United States	Mount McKinley	Alaska	20,320	Death Valley	Inyo, Calif.	-282	2,500

¹ See U.S. Geological Survey (1893, pt. 2, p. 284-289) for method of finding mean altitudes.² Coast and Geodetic Survey.³ Corps of Engineers.⁴ Mean sea level of the Pacific at Panama is 0.7 feet higher than mean sea level of the Atlantic at Colon.

Table 9.—Extremes of altitude in the continents

	Highest point		Lowest point		Approximate mean altitude (feet)
	Location	Feet above sea-level	Location	Feet below sea-level	
North America	Mount McKinley, Alaska	20,320	Death Valley, Calif. (fig. 51)	282	2,000
South America	Mount Aconcagua, Argentina	22,834	Salinas Grandes, Peninsula Valdez, Chubut Province, Argentina	131	1,800
Europe	Mount Elbrus, U.S.S.R., Caucasus Mountains	18,481	Caspian Sea, U.S.S.R., and Iran	92	980
Asia	Mount Everest, Nepal	29,028	Dead Sea, Israel and Jordan (fig. 53)	1,286	3,000
Africa	Kibo Peak (Kilimanjaro), Tanganyika Territory	19,340	Qattara Depression, Egypt	436	1,900
Australia	Mount Kosciuszko, New South Wales	7,316	Lake Eyre, South Australia	39	1,000
Antarctica	Vinson Massif Group, Ellsworth Mountains	16,860	Sea level		6,000

inaccessible as Everest is difficult to obtain. Corrections must be made to the observed altitude for refraction of the atmosphere, the shape of the geoid, and the varying amount of snow on the peak. For discussions of the height of Mount Everest, see De Graaff-Hunter (1955) and Gulattee (1954). (See fig. 54.)

The greatest ocean depth thus far discovered is in the Mariana Trench in the Pacific, about 200 miles southwest of Guam (lat $11^{\circ}21'$ N., long $142^{\circ}12'$ E). It has been called the Challenger Deep. The depth, measured by soundings in 1957, is 6,033+ fathoms, or 36,201 feet, and this value is generally accepted by scientific organizations. In 1960 the bathyscaph "Trieste" descended to the ocean floor in the same locality. It registered a depth of 5,967 fathoms—35,802 feet. (For a description of this descent, see Piccard, 1960, p. 224.) The greatest confirmed depth recorded in the Atlantic is 4,729 fathoms (28,374 feet). The position of this depth is in the Puerto Rico Trench, about 60



FIGURE 52.—Mount Rainier, altitude 14,410 feet, highest point in the State of Washington. View is southwest looking at the Emmons Glacier and the White River Valley. (Photograph by Dwight R. Crandell.)

miles north of the eastern end of the Dominican Republic, at lat 19°35' N., long 68°17' W. This measure from the U.S.S. Archerfish in 1961.

The table below (table 10) lists extreme points in the cardinal directions, considering first the 50 States, then the continental United States, and finally the conterminous 48 States.

The southernmost point in U.S. territory is Rose Island of the Samoan group—almost exactly 1,000 miles south of the Equator. Point Barrow, the extreme north point of Alaska, is nearly 5,000 miles north of the Equator. (See fig. 10.)

Alaska with its islands extends from 130° W., past the 180° line to 172½° E., or 57½° of longitude. The difference in time (3 hr, 50 min) between these two extremes is greater than that between New York and San Francisco.

The following distances in statute miles are computed to mean sea level: (a) West Quoddy Head, Maine, along the parallel to the Pacific Ocean, 2,807 miles; (b) the south point of Texas due north to the 49th parallel, 1,598 miles; (c) West Quoddy Head, Maine, to Cape Wrangell, Alaska, 4,839 miles; (d) West Quoddy Head, Maine, to Kure Island, Hawaii, 5,788 miles; (e) Mangrove Point, Fla., to Cape Wrangell, Alaska, 5,496 miles; (f) Mangrove Point, Fla., to Kure Island, Hawaii, 5,848 miles. The length of the northern boundary, excluding Alaska, is 3,987 miles; the Canadian-Alaskan boundary, 1,538 miles; and the Mexican

boundary from the Gulf of Mexico to the Pacific Ocean, approximately 1,933 miles.

The geographic positions of the following points are of interest:

	Latitude (N)	Longitude (W)
Cape Mendocino, Calif.	40°27'	124°24'
Cape Sable, Fla. (on mainland)	25°07'	81°05'
Kure Island, Hawaii	28°25'	178°22'
Extreme south point of Texas	25°50'	97°24'

The two points farthest apart in the conterminous 48 States are West Quoddy Head, Maine, and Point Arena, California. The distance between them is 2,897 miles. From a point 10 miles south of Brunswick, Ga., to a point 12 miles south of San Diego, the distance is 2,088 miles, which is the shortest distance between two points, one on the Atlantic and one on the Pacific.

The highest point in North America is Mount McKinley, in Alaska, 20,320 feet above sea level (frontrise).

The highest point within the conterminous 48 States is Mount Whitney—14,495 feet above sea level. The lowest point of dry land is in Death Valley—282 feet below sea level. These two points, both in California, are only 86 miles apart. (See figs. 50, 51.)

Table 10.—Points of extreme latitude and longitude of the United States

	Extreme point	Direction	Latitude (N)	Longitude (W)
The United States (50 States):	Point Barrow, Alaska	North	71°23'	156°29'
	KaLae (South Cape), Hawaii	South	18°56'	155°41'
	West Quoddy Head, Maine	East	44°49'	66°57'
	Cape Wrangell, Alaska (Attu Island) ..	West	52°55'	172°27'(E)
Continental United States (48 States):	Point Barrow, Alaska	North	71°23'	156°29'
	Key West, Fla.	South	24°33'	81°48'
	West Quoddy Head, Maine	East	44°49'	66°57'
	Cape Wrangell, Alaska (Attu Island) ..	West	52°55'	172°27'(E)
Conterminous United States (48 States):	Lake of the Woods Protection, Minn.	North	49°23'	95°09'
	Key West, Fla.	South	24°33'	81°48'
	West Quoddy Head, Maine	East	44°49'	66°57'
	Cape Alava, Wash.	West	48°10'	124°44'



Highest and Lowest Points in the World.

FIGURE 53 (above).—Dead Sea, Israel and Jordan, altitude 1,286 feet below sea level, lowest point of dry land on the Earth. (Photograph by Josef Muench, Santa Barbara, Calif.)

FIGURE 54 (opposite).—Mount Everest in the Himalaya Mountains, altitude 29,029 feet above sea level, highest point on the Earth. (Photograph by George Slik, Westport, Conn.)



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